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The Air Ministry Moves

S a mere matter of tactics, the Air Ministry would be well advised if, when important developments are in the offing, they took the public into their confidence before things happened instead of waiting to show their wisdom after some event has aroused apprehension. The air race to Australia has stirred popular feeling to a degree only precedented by the Schneider contests. Quite apart from public satisfaction that Great Britain has won the speed race, there is a general feeling abroad that the air services in the British Empire are too slow. Almost as much attention has been bestowed on the Douglas aeroplane which came in second as upon the winning British "Comet." The belief has got abroad that the K.L.M. service to the East is very much faster than the service of Imperial Airways. As appears from a letter published this week in our correspondence columns, there is no foundation in fact for this impression. The K.L.M. service reaches Singapore on the 10th day out from London, while the Imperial Airways service reaches the same port on the This comparison only applies to the ninth day. K.L.M. service as carried on with the older Fokker machines. The Douglas 14-seaters are a new importation from America, and they should materially increase the journey-speed of the K.L.M. service. The point on which critics have seized is that Imperial Airways at the moment do not possess a type of machine which could have done so well in the Australia race as the K.L.M. Douglas actually did.

At this juncture, while the Press is full of fury and rage, Sir Philip Sassoon returns from his inspection of R.A.F. stations in the East, and reveals that months ago the Air Ministry entered into consultations with the Post Office and Imperial Airways, and had reached the conclusion that "the present flying times between London and the other Empire capitals must be progressively What a lot of heated and drastically curtailed." criticism would have been averted if a statement to that effect had been issued before the great race took

The Air Ministry is not so fanatically devoted to secrecy as are some other Government Departments, but it is still slow to recognise that there are occasions on which frankness is very much the best policy. It goes without saying that we absolutely accept the assurance of the Under-Secretary of State for Air, but if more cynical critics should say that the Air Ministry has been wise after the event, or that "months ago" seems to tally with the publication of the terms of the Melbourne race, the Air Ministry will only have itself to blame.

Faster and Oftener

CIR PHILIP, in the interview which he granted to the Press, said that he contemplated more frequent services as well as faster times. He also spoke confidently of the coming of night-flying, and he said that he was sure that in time all first-class mails would go by air. We might not now have as fast a passenger aeroplane as the Douglas, but, said Sir Philip, there is no reason why we should not have as good a machine. His confidence is well founded. British designers have always been able to rise to any definite task which has been set them. They have been able to produce Schneider winners, makers of the distance and altitude records, and the winner of the Melbourne race. There is certainly no reason why they should not produce a passenger aeroplane at least equal in all ways to the

The mention of night-flying by Sir Philip is especially interesting, because flying passengers by night can hardly be looked on as a commercial proposition. Not very many would be likely to want it, and with passengers lying full length in bunks, the capacity of the machine for paying passengers would be reduced by half. This would mean either very high fares or a substantial increase in subsidy. For the time being we may rule the matter out of consideration. It follows that night-flying implies special mailplanes, which we should welcome. It has always seemed to us bad policy to delay the mails for the sake of the comfort of passengers. It should always be the standard policy to send mails as fast as it is possible to drive them along.

The increase in frequency of service should come together with the increase of speed. A weekly mail service only gives its full advantage to the man who writes his letter on the day the aeroplane starts. In the early days of the air mail to India not a few cases occurred of people in towns far distant from Karachi who just missed the home mail. Their letters then had to wait a week for the next dispatch, and the correspondents wrote indignantly to the papers complaining of the slowness of the air mail. A bi-weekly service to the East must be the first objective, but we must not rest content until air mails start for India and Australia every day of the week. Soon, as Sir Philip said, we may have to add China also to the list.

Sir Eric Geddes' Views

SIR ERIC GEDDES, chairman of Imperial Airways, agrees with Sir Philip Sassoon and with Flight about the desirability of more frequent services, but he will not have a separation of mail and passenger services. The idea is anathema to him. All

talk of speed, too, seems to cause a rise in his temperature. He takes pride in the record of Imperial Airways "going along on its steady, plodding, non-spectacular course," which, he says, is the soundest and best in the end. None the less, he speaks with justifiable pride of plans which should enable Imperial Airways to reach Sydney in about 7½ days. If that schedule is brought into operation with reasonable promptitude most of the criticisms of Imperial Airways which have lately been growing loud will fade away. Again, Sir Eric admits that "We can operate any kind of service, and it is for the Governments concerned and our customers to say and demonstrate which class of service and which scale of charges they wish to have."

We have always agreed that it is no business of Imperial Airways to be philanthropists. Speed costs money, and if more speed is demanded someone will have to pay for it; probably the British taxpayer will have to find most of the money. We cannot allow the K.L.M., when they get their new Douglases, to beat us on schedule to Singapore. If other countries decline to set up the same ideals as have hitherto been set up in Great Britain, namely, the abolition of air subsidies, and decline to refrain from what Sir Eric Geddes calls "a mad race in subsidised travel by air," then, presumably, we, too, must adopt a new attitude. Apparently the Government is ready to find money to speed up the Australia

schedule to one of 71 days.



HOME AGAIN: The D.H. "Comet" surrounded by an admiring crowd at Lympne after Lt. Cathcart Jones and Ken Waller had flown 23,000 miles to Melbourne and back in less than a fortnight. An account will be found on p. 1168.

The Outlook A Running Commentary on Air Topics

Joy in Egypt

SIR ERIC GEDDES' announcement that the service to Capetown is to be doubled in frequency in the near future will be welcomed by the British residents in Egypt, who will also hope that the East-bound service will likewise be doubled. At the present time the mail loads are so great that not only can very few passengers be carried, but the machines have to be refuelled at many more places than would otherwise be needed. To maintain the published schedule this makes it necessary to fly long hours, often at night; to start very early and to finish very late, all of which is hard on the passengers when their seats are not adjustable for reclining.

Passenger Accommodation

A NOTHER effect of this is the fact that bookings, a few weeks ago at any rate, could not be accepted under six weeks' notice. This negates, almost entirely, the value of the speed of air travel, and, moreover, raises the all-important question as to whether Imperial Airways are justified in paying dividends to their comparatively small number of shareholders out of the proceeds of a subsidy paid for by all taxpayers, if they do not provide an adequate service to meet the needs of those taxpayers. The feeling in Egypt is that they are not.

Flying by Bradshaw

AFTER many years, flying men and women will at last find it necessary to give up a very excellent catholic expression. The words "flying by Bradshaw" now have a double meaning, since airway passengers and private pilots can make indiscriminate use of them.

Since Bradshaws, after producing a railway time-table for the last century or so, have brought out an airway time-table, the expression, too, might mean either "following the railway" or "following the air route," and becomes, consequently, too vague for general use. However, "flying by Bradshaw" was never a very satisfactory mode of progression, permissible only under conditions of half-mile visibility, and the loss of the expression may mean the reduction of "faith, hope and Bradshaw" flying.

Two hundred and forty-one services are given in Bradshaw's International Air Guide, as well as all the information about clocks and currencies that the traveller is likely to require.

Warships and Aircraft

NCE again it is necessary to warn readers against drawing unjustifiable conclusions about the relative merits of warships and aircraft from the combined Naval and Air Force exercises which have just been held. A fight between ships and aircraft with no modifying circumstances is as unlikely to take place as would be a battle between, say, artillery and cavalry. In these days a fleet would not be a fleet unless it had its own air arm. Consequently the recent exercises were not a test of the comparative merits of the two sorts of craft, though they may in some sort be regarded as a tussle between air power and sea power-the latter including a part of the Fleet Air Arm. In these exercises a fleet, consisting of capital ships, cruisers, destroyers, and the aircraft carrier Courageous, was given the task of trying to make its way from the North Sea through the Straits of Dover to Portland. It was a considerably more complicated exercise than the very simple one carried out in September, 1933. off the east coast of Scotland. This time night operations

took place, and the fleet took all precautions, such as wireless silence, to prevent the shore-based aircraft from getting an inkling of its movements. The shore-based aircraft consisted of the greater part of the Coastal Area, under the command of Air Vice-Marshal A. M. Longmore, who had at his disposal not only the four flying boat squadrons in this country, but also such squadrons of the Fleet Air Arms as are now stationed on shore.

Exaggerated Heroism

T appears from accounts which have been published that the Admiral tried to screen his capital ships and carrier from the attacks of the shore-based aircraft by making the cruisers draw attention to themselves at night. This was done by steaming so fast that the wakes became visible to the scouting flying boats. The cruisers were accordingly attacked by bombers and torpedo-planes, while the fleet's aircraft went up to meet the assailants in the There is always unreality in sham fighting, and the Coastal pilots seem to have displayed an exaggerated contempt for the anti-aircraft guns of the fleet. Probably both sides will claim a victory, but in sober truth it would be impossible to estimate the damage which either side would have sustained. Nevertheless the exercise was doubtless very useful to both sides, and we may hope that such exercises will be held frequently and with progressively complicated conditions.

Imperials' New Aircraft

THE announcement that certain new machines are on order for Imperial Airways is not news to the aircraft industry, but previous to Sir Eric Geddes' speech nothing was allowed to be said about them. There are still matters which must be left to the imagination, but couppling what little fact is known with well-founded rumour

the position would seem to be as follows:-Four D.H.86 eight-ten-seaters have been on order from De Havillands for some time, and these will evidently be the machines of which Sir Eric speaks, to be used on the European lines. We can therefore assume that there is a reasonable chance of the Paris service being run with greater frequency. The use of these aeroplanes will probably release certain of the Heracles class for service out East, and will allow of the announced increase of frequency in the services there. The four two-engined aeroplanes for feeder and charter work are two from Boulton and Paul, to be named Boadicea and Britomart, and two from A. V. Roe's called Avalon and Avatar. The former are twin-engined biplanes designated the Boulton and Paul type P.71a, and are in effect scaled-down Mail-planes with two Siddeley "Jaguar" engines, carrying six or seven passengers for a distance of about 420 miles at a speed of 150 m.p.h. The latter are the Avro They are low-wing twin-engined (Siddeley Cheetah'') monoplanes with retractable undercarriages with, as standard, accommodation for eight passengers. Their cruising speed will be 150 m.p.h. So much for the aircraft about which definite information can be published. Of the others, it is said that a large flying boat suitable for Transatlantic services is under consideration, as are two other boats and two landplanes, both the latter types being larger and faster than anything now in service. They are to be prototypes, and so probably they will be tried out well, each against the other-that is, assuming that two different boats and two different landplanes are ordered (as seems likely), before a further order is placed for a general increase in Imperial's main fleet.

THE ENGLAND-AUSTRALIA RACE

FINALE

The End of the Sixteen-day Period: Final Awards in the MacRobertson Race: The Douglas Wins the Handicap Prize: Times and Speeds of Competitors



THE WINNERS: In this photograph, which was brought by Cathcart Jones and Waller, the crew of the Douglas, which was the handicap prize winner, and of the winning D.H. "Comet," take breakfast together. From left to right are Campbell Black, Moll, Scott, van Brugge, Parnz and Parmentier.

NE of the twenty starters in the Australian Race had completed the course at the end of the permissible period. The New Zealanders, Hewett and Kay, with the "Dragon Six," which was damaged at Cloncurry, were the last to arrive in Melbourne.

Considering the difficulties of the route, such a proportion of finishers can be considered to be an excellent one. Among the unlucky, F/O. Davies and Lt. Com. C. L. Hill had reached Calcutta in their Fairey III F, Flt. Lt. Shaw was still at Bushire with the undercarriage of his Klemm "Eagle" damaged, and H. L. Brook (Miles "Falton") was at Aleppo after obtaining a new airscrew at Athens.

Scott and Black led in the final handicap placings, but, as winners of the £10,000 prize in the Speed Race, they were ineligible for the first prize (£2,000) in the handicap section, and this, consequently, goes to Parmentier and Moll. Col. Roscoe Turner and Clyde Pangborn have necessarily taken the vacant second place in the Speed Race, so C. J. Melrose takes the other handicap prize.

Thus, the prizes for the two events were distributed as follows:—

Speed Race

- I. C. W. A. Scott and T. Campbell Black (D.H. "Comet"), £10,000 and the Trophy.
- 2. Col. Roscoe Turner and Clyde Pangborn (Boeing 247-D), £1,500.
- 3. Lt. O. Cathcart Jones and K. F. Waller (D.H. "Comet"), 500.

Handicap Race

- 1. K. D. Parmentier and J. J. Moll (Douglas D.C.2), £2,000.
 - 2. C. J. Melrose (D.H. "Puss Moth"), £1,000. The win of the Douglas is all the more remarkable when

it is remembered that the crew unshipped very nearly a ton of payload before the machine was flown out of Albury racecourse. According to the rules, the payload with which a competitor reaches Melbourne will be considered to be that with which the machine has flown throughout the race. Actually, of course, the Douglas was very comfortably handicapped in any case.

Judging from the flying time given by K.L.M., it seems that the Douglas was firmly re-handicapped.

Scott and Black, incidentally, have been awarded the British Silver Medal for Aeronautics by the Royal Aeronautical Society. This medal was founded in 1933 by Lord Amulree, and is awarded for outstanding achievement in aviation.

Below are given the cabled times of the competitors in the Speed Race and the net times for the Handicap Race, together with the competitors' calculated flying times and speeds. The Royal Aero Club were unable, at the time of going to press, to confirm these figures.

Speed Race (All-in Time				Speed			
1. Scott and Black (D.H. "Comet") 2. Parmentier and Moll (Douglas D.C.?) 3. Turner and Pangborn (Boeing 247-D) 4. Jones and Waller (D.H. "Comet") 5. Hewett and Kay (D.H. "Dragon Six"	h. 70 90 92 108 330	m. 54 13 55 13 51	s. 18 36 38 45 10	m.p.h. 159 125 121,5 104 34			
Handicap Race.	Net Times.			Flying Times.			Speed.
Scott and Black (D.H. "Comet") Parmentier and Moll (Douglas D.C.2) Melrose (D.H. "Puss Moth") Stodart and Stodart (Airspeed	76	m. 48 38 17	8. 49 12 50	h. 65 71 120	m. 24 28 16	s. 13 0 2	m.p.h 190 173 103
5. McGregor and Walker (Miles " Hawk Major ")			30 , 34	100 118	24	06 46	123 105
6. Hewett and Kay (D.H. "Dragon Six") 7. Hansen (Desoutter)	85 87	42 45	28 21	106 129	51 47	28 45	116 95

THE ENGLAND-AUSTRALIA RACE

THE FEELING ABROAD

A synopsis of the views expressed about the Melbourne Race by people met by the writer on the aerodromes between Croydon and Baghdad

By C. N. COLSON

THERE is no doubt that the withdrawal of so many American entries served to decrease the interest shown abroad in the Melbourne race.

In France I did not find a superabundance of excitement, although the papers, and particularly those which deal with aviation news—and here I should like to interpolate that the French daily papers as a whole show a far greater interest in aeronautical matters than do English papers, and most of them include a half-column of aircraft movements and general news every day—dealt with events preceding the race fairly fully. The general feeling seemed to be that, as the French entries were unable to be prepared in time, the result was of no particular interest to French people.

If there was any expression of opinion, then it was to the effect that the apparently well-organised Dutch entry, with a machine which had been fully tried out in its country of origin, was most likely to win, particularly in view of the fact that the Dutch pilots had had considerable experience over the route.

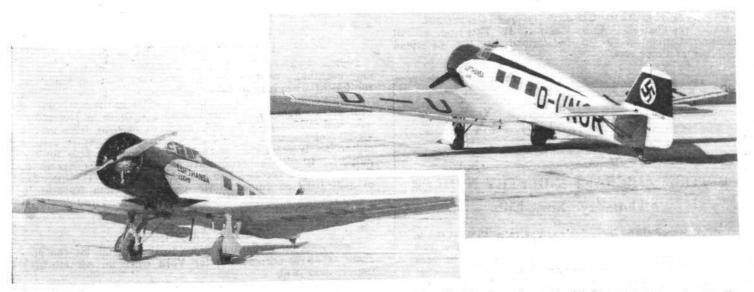
In Italy there was an evident and general feeling that the British attempt to win the premier prize was a sporting attempt in the face of very long odds. They looked upon the Dutch-flown Douglas almost as a foregone conclusion for the winner. Various pilots to whom I spoke thought that the Douglas was the very last word in efficiency from every point of view, and that the "Comet" was merely a racing machine with little or no future. My assertions that it would make a very useful mailplane for our own Empire routes, and that both structurally and aerodynamically it was an achievement far in advance of anything the world has so far seen, met with considerable scepticism. The fact that the Douglas was carrying three fare-paying passengers and one bag of mail seemed in their minds to ontweigh everything else and to stamp that entry as the one solid one which should be considered as a commercial proposition. In general, the Italian mind did not seem receptive to the idea of efficiency being coupled with a low horse-power; they evidently thought that, even for regular mail services, a superabundance of power was a sine quâ non.

As far as Baghdad was concerned, the educated Iraqi was certainly pro-British, and hoped that the British entries would prove their worth, but even there I found a lack of enthusiasm over the "Comets" chances. They rather adopted the attitude—a genuine attitude which was not merely one tempered by the dictates of politeness—that they would like to see the British entries win, but that they rather thought that the Dutch entry was likely to prove too formidable

Peculiarly enough, there was little or no mention of the Boeing, although this machine and its crew impressed me most favourably on its arrival at Baghdad. It was evident that everything had not gone as smoothly as could have been wished, and that unnecessary delay had occurred; but, putting aside individualities, there was an air of efficiency about the combination of aircraft and crew which made that particular entry look a very possible winner, if the "Comets" had untoward trouble.

Apart from the actual questions of which machine was likely to win, there was evidence that the race was hailed with satisfaction by the authorities both at Baghdad and at Cairo—although mostly at the former—as being a means of drawing attention to the strategic position of these airports.

As pointed out in *Flight* about this time last year, Cairo is undoubtedly the passenger traffic centre of our Empire air routes. The race has, so Iraq hopes, shown that Baghdad is also a point of considerable importance in our Empire's air links. Whether or not it will prove to be more important from a mail point of view than Cairo is, I think, open to considerable doubt, but it is, nevertheless, a matter of considerable gratification to us that the Iraq Government, through the services of Mr. Gumbley and, latterly, Mr. Bailey, have laid out and established such a well-equipped and excellent aerodrome which will, when the Post Office awakes to its responsibilities, prove of inestimable benefit to our Empire.



FOR LUFT HANSA: The Junkers Ju.160, developed from the Ju.60, has been built for "express trame" work. A 700 h.p. B.M.W. "Hornet" radial (Pratt and Whitney licence) gives it a maximum speed of 211 m.p.h. With Hamilton adjustable pitch airscrew the machine cruises at 186 m.p.h. and carries a disposable load of 2,535 lb. The N.A.C.A. cowling contains a forced draught arrangement which directs hot air from the engine downward to avoid fouling the cockpit and cabin.

23,000 MILES IN A FORTNIGHT

Cathcart Jones and Waller Return to Lympne after Completing the Record-Breaking Round Trip in 13½ Days

AT 1.15 p.m last Friday the D.H. "Comet," which was fourth in the race to Australia, landed at Lympne. Lt. O. Cathcart Jones and Mr. Kenneth Waller, reaching Melbourne in less than five days after a series of misfortunes, set out on the return journey almost immediately, and were back on English soil less than a fortnight after their departure from Mildenhall.

When Flight went to press last week the "Comet" had left Allahabad after being delayed by a recurrence of their engine trouble, and reached Karachi at 12.50 p.m. (G.M.T.) on Tuesday. Apparently the stranded Mollisons had lent Cathcart Jones the necessary parts from their own machine. At 8 p.m. the pilots left Karachi for Baghdad, remained there for less than an hour, and reached Tatoi aerodrome, Athens at 1.26 p.m. (G.M.T.) on Wednesday.

They had originally intended to fly direct to England, but, with bad weather off the Italian coast, they wisely stayed the night at Athens. Again they were delayed by bad weather, and left finally at dawn on Friday, reaching Lympne at 1.12 p.m.

Among the many people who greeted them on arrival was Mr. Bernard Rubin, the "Comet's" entrant, who originally hoped to fly in the race with Ken Waller, but who was prevented by illness from so doing.

Generally speaking, this extraordinary effort on the part of Cathcart Jones and Waller has not received due credit. After the excitement of the race itself, the world was in-



PILOTS AND OWNER: Lt. Cathcart Jones, Ken Waller and Bernard Rubin beside the record-breaking D.H. "Comet" at Lympne.

clined to forget them. Quite apart from the various "records" that have been broken, and the indication given of the possibilities of higher commercial speeds over the route, the two pilots have fought continuously against a series of misfortunes.

At Mildenhall it was their "Comet" which was damaged and repaired in twenty-one hours; they overshot Baghdad on the first "leg"; they were troubled with high engine temperatures; once at least their Ratiers failed to "change gear"; and they landed by error at Mount Isa, near Cloncurry, this pause effectively ruining their chances in the handicap race.

Yet they had covered 23,000 miles in rather less than a fortnight.

Lt. Cathcart Jones tells us that he and Waller propose to leave towards the end of this month on a fast flight to Cape Town. The "Comet" should have little difficulty in breaking more records on this trip.

A Russian Airship Air Route

The first dirigible line in the U.S.S.R. between Moscow and Sverdlovsk a distance of 1,000 miles, is to be put into operation in the near future. The dirigible to be used is of a semi-rigid type, and is equipped with three motors each of 250 h.p. It is capable of carrying eighteen passengers, with the mail, and will cover the route in sixteen hours.

Civil Aviation Committee for Liverpool
Under the chairmanship of Major R. H. Thornton, a Civil
Aviation Committee is to be formed by the Liverpool
Chamber of Commerce.

NEXT WEEK!



BRITISH AIRCRAFT INDUSTRY NUMBER

Thursday, Nov. 15th.

AN enlarged issue, including an Illustrated Buyers' Guide to British Aircraft, embodying characteristics and eading dimensions, also sections devoted to British aero engines, accessories and equipment, as well as advance details of the Paris Show

The regular features will be retained

Definite orders for "Flight" should be placed with newsagents.

EVERY THURSDAY SIXPENCE.

Ultra-modern Airport for Stockholm

The Bromma airport and civil aerodrome at present under construction near Stockholm is expected to be completed in 1936. Most of Stockholm's air services have, hitherto, made use of seaplanes operating from Lindarängen, and have been discontinued during the winter. A commission has been studying various plans submitted, and it has been decided that the airport must be equipped with the most modern facilities and that it must be ready for 1936.

Colombo as Air Base

Ceylon, which has hitherto been rather out of the picture, may eventually become a most important aviation base and rob Calcutta of much of its importance.

In this connection great interest attaches to the forthcoming visit of two flying boat experts from Singapore in December, who will survey possible sites for a flying-boat base in the vicinity of Colombo. The Negombo Lagoon, despite certain objections, is generally regarded as the most suitable for the purpose. If the experimental flights from Singapore to Colombo prove successful it is understood that the question of instituting an Imperial Airways service from Karachi to Colombo, and thence to Singapore, the Far East and Australia will be considered.

York's Aerodrome

There were no verbal objections to the scheme for the purchase of an aerodrome site for York when an Air Ministry inquiry was held.

inquiry was held.

The projected aerodrome will have its being at Clifton Without and Rawcliffe, and will provide maximum and minimum runs of 1,400 and 750 yards respectively. A portion of the site has been used in the past for pleasure flying. For the moment, the City Council do not propose to put up expensive buildings, but to erect a hut and, perhaps, a hangar.



A SECTION FOR OWNER-PILOTS
AND CLUB MEMBERS

OT the least problem with which one is confronted when planning a long journey by air is making up one's mind what luggage and spare parts should be taken.

In the first place, one is limited by the capacity of the machine and by the space at one's disposal. As far as luggage is concerned, those who entered for the Melbourne air race needed little more than a topee and a tooth-brush; but when one is taking a more leisurely flight, involving business and ceremonial calls, the question requires more

consideration. Not only has one to decide what to take, but, what is equally important, convenience of access to one's outfit must be assured if a journey of several months' duration is to be undertaken without discomfort.

This latter requirement was my first thought, and, with this object in view, I measured up the cabin carefully, and had three light suitcases, of the green rot-proof canvas variety, made to fit exactly into the space available. My personal equipment was then chosen to accord with the limitation of this accommodation. For such odds and ends as

were frequently required I took a light kit bag, with a zip fastener, which has already proved very useful. By arranging matters in this way, the luggage was housed without overcrowding the interior, thus ensuring convenience in flight and ready access for Customs and other purposes.

By adopting this method, the weight of the gear could be accurately ascertained before starting out—a preferable course to that of being forced to jettison part of one's luggage in conditions where an overloaded machine was likely to make the taking-off difficult. Such care was the more necessary, as, of course, a considerable amount of extra weight had been added in fitting the auxiliary petrol tank and also the larger oil tank.

Suitable Spares

HAVING solved the luggage problem to my satisfaction, the question of spares had to be faced. So far as the journey to Australia is concerned, the possessor of a machine from the De Havilland stable is perhaps more favourably situated in this respect than the owners of certain other types of aircraft, the firm in question having arranged for spares to be available at several depots en route. Those taken were, therefore, confined in the main to parts which were not standard or which were of a proprietary nature.

The proper functioning of the machine on an extended tour involves careful maintenance throughout; and as, perforce, I must rely on my own efforts, the choosing of an adequate kit of tools, cleaning materials, and so forth, was essential. Having found the low-pressure tail wheel unit a convenience that I should not now like to be without, I considered it of the utmost importance to carry a spare tail skid bearing bracket and fork complete, as this is not a standard fitment. When one is flying solo there are likely to be many occasions on which one is forced to manhandle the machine without assistance. This is

where the particular type of tail unit mentioned is unusually valuable, and on a journey where all kinds of aerodromes have to be used, the possibility of the unit being put out of action by a heavy landing on uneven ground makes the transport of this spare well worth while.

Dismantling the tail wheel unit, if it becomes necessary to fit a new fork, is a simple matter in the shops, where special tools are available, but would not be so simple if one were marooned in the desert. The engineer in charge of the overhaul of the machine was, there-

of the overhaul of the machine was, therefore, thoughtful enough to supply me with a special extractor to facilitate the removal of the spindle. His ingenuity in making this tool deserves comment, as he had it made of such a length that it serves, when placed under the stub axle of the undercarriage wheels, as a gauge for testing the pressure of the tyres.

Other spares included a spare pressure head, two petroflex leads from cabin to tank, one Tecalemit oil filter element, two sets of plugs and four windscreen wiper blades. A windscreen wiper is a most desirable fitment, but it is of little

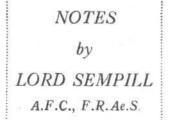
use if the blades are not effective. I therefore thought it well to have several in reserve, as it is probable that on some sections of the route the wiper will have a lot of work to do. One does not often get punctures, but, as a precaution, I took a repair outfit and a small bicycle pump. Another fitment, which I have found most useful, was not forgotten, and that was the "night flying hood" which can be fixed over the instrument board. This shades the instruments from the reflection of the moon, which can make the illuminated dials very difficult to read.

Two small tins of upper cylinder lubricant were taken, as the distribution of this oil is not so general as it might be. At the last moment I asked my mechanic to obtain a gallon tin with a spout in order to carry a reserve of engine oil. A suitable tin of this description could not be found, so he took an ordinary gallon can as supplied by the makers, cut out the patent stopper without damaging it, and soldered in a short length of tube of the same gauge. He afterwards fitted the stopper to the end of the tube, thus making a container which is very convenient for replenishing the oil tank, the filling orifice of which is not too accessible.

The Auxiliary Tank

I T might be interesting here to give the weight of the ten-gallon auxiliary petrol tank, as this, including all the necessary supports and fitments, came out considerably under the estimated weight. The tank was constructed by the Aluminium Plant and Vessel Co., Ltd., and, when weighed, was found to register only five pounds avoirdupois. The bearers, the pipe from the tank to the main pipe line, two bracing members, some straps and additional petrol cocks added only a further five pounds, so that the whole installation totalled the remarkably low weight of ten pounds.

As a great deal depended on the proper functioning



Private Flying

of this tank, the machine was tested in the air with but two gallons of fuel-the supply from the main wing tanks being turned off. It was flown at the maximum climbing angle and a number of steep banks were made to see how low in these conditions the petrol could be allowed to fall.

The flow is taken from a point near the port side of the tank, so that one concentrated on banking in the direction which would tend to expose the outlet when the machine was in this position. The reason for this was, of course, that in these circumstances there might have been a tendency for air locks to form. The petrol supply proved, however, to be perfectly free in all condition of test, and the installation was considered, therefore, to be entirely satisfactory in every way.

FROM THE CLUBS

Events and Activity at the Clubs and Schools

SOUTHERN

Club machines have flown 15 hr., 6 hr. dual and 9 hr. solo, during the past week. Visitors included Brigadier-General Lewin, flying his "Hawk Major." Club-house alterations are now complete.

HERTS AND ESSEX

A total of 58 hr. flying, 23 hr. dual and 35 hr. solo, was accomplished last week. Messrs. Newman Eyre and W. I. Scott-Hill have passed their "A" licence tests, and three new members have joined the club.

MIDLAND
During the past fortnight at Castle Bromwich club members put in a total of 22 hr. 40 min. flying, of which r hr. 45 min. was dual and 20 hr. 55 min. solo. Bad weather has been prevalent during this period.

LIVERPOOL AND DISTRICT During the month of October club machines flew 116 hr., bringing the total hours flown to date since January I to 1,986 hr. 20 min. Weather conditions last week were very bad, with high wind, snow and rain, so the total hours flown only amounted to 21 hr. 15 min.

HAMPSHIRE

Last month's flying time, with five machines in operation,
was 154 hr. 15 min. Messrs N. R. L. Urquhart, David Kay,
I. A. N. Atchison and Lt. A. T. Courtney, R.N., have qualified for their "A" licences. Lt. C. W. McMullen, R.N., and Miss Daphne Abrams made first solos. Two new members have joined the club.

WITNEY AND OXFORD
Bad weather made flying impossible on three days of last week, and only 13 hr. were flown. E. H. Noel has joined as a pilot member, and Miss G. Badman as an associate. Mr. Sewell, who recently took his "A" licence, has now commenced instruction for his "B" licence. The club will be closed from November 12 to December 2, but petrol, oil, and service will be available for visiting aircraft.

HATFIELD The flying time at the London Aeroplane Club for the past week was 46 hr. 5 min., and the total amount of flying for the month of October 218 hr. 40 min.

The R.A.F. Flying Club carried out a total of 58 hr. 35 min flying during October on their two "Gipsy Moths." The membership is still growing steadily, the number now having reached 150. It is proposed to hold a club dinner some time in February to enable all the members to become acquainted with each other.

NEWCASTLE Since the reopening of the aerodrome after staff holidays, a considerable amount of flying has been carried out, in spite of the very bad weather conditions prevailing on the North-East Coast. During the past week, although only two days have been suitable for flying, the club has carried out twenty-three hours' flying. The aircraft have been recently overhauled by De Havilland's, and one has been fitted with blind-flying equipment. This type of instruction is very popular, the charge being 30s. per hour.

READING Thick weather last Sunday week rather spoiled the Reading Club landing competition, and the attendance was not up to scratch. However, several members essayed to come to rest on a spot in the middle of the circle, the two best scores being those of Mr. Armitage and Mr. Bishop. Mr. Armitage's pace scores were 24, 15, and 16 and Mr. Bishop's 0, 24, and 4. As the best two shots were those taken into consideration, their average worked out at 15½ and 2 respectively. Curiously enough these two gentlemen hold the Barnes Efficiency Trophy for 1934 between them, so they are becoming deadly rivals! Miss Ruth Fontes is the latest member of the club to take delivery of a machine—a "Hawk Major."

CINQUE PORTS

Flying times for the past week, dual and solo, totalled thirty-one hours, the weather being distinctly on the bad side and preventing these times being greater. The great occasion of the week was the arrival of Ken Waller and Cathcart Jones on their return from Australia.

D A total of 128 hours flying was recorded for the past month. At present there are nine pupils undergoing *ab initio* instruction. The Autogiro continues to be in demand not only for *ab initio* training and conversion courses for qualified pilots but also for joy rides among non-flying members of the club.

'AMBRIDGE

Although it is now winter time, and on one day during the past week flying was impossible owing to snow and sleet, flying times at Marshall's Flying School continue to be well above the average; 24 hr. dual and 12 hr. 30 min. solo were flown. Three new members, Messrs. D'Orey, Gay and Issaverdens, injured the school, the first named from Darthard dens, joined the school, the first-named from Portugal.

NORFOLK AND NORWICH

Bad weather rather spoilt flying over the week-end, but

during the week Mr. Collier was busily employed.

The club held its annual ball last Friday evening, which was attended by over two hundred guests. Many came by air, a number of which were from the R.A.F. stations. The club had constructed a complete ballroom in a hangar which was lent for the occasion by Boulton and Paul, Ltd., and as this adjoined the club-house the two made one complete and impressive unit.

OUTHEND

Flying hours have been well maintained at the Rochford aerodrome during October, and five new members have com-menced to take instruction. Mr. Ellison, who was to have been navigator for Messrs. Pond and Penny in the "Vultee," the Australian entry in the air race to Melbourne, contented himself for the non-arrival of this machine by hiring one of Wrightsons' "Leopard Moths" and has found himself very popular with his friends at Rochford. Week-end visitors will notice with regret the dismantling of the old stand.

BROOKLANDS Flying times for last week were 17 hr. 35 min. solo and 45 hr. 35 min. dual, making a total of 63 hr. 10 min.—good, considering the rain and snow. First solos were flown by Messrs. Webb, Van Damm, and Simpson. Mr. Rumsey is being coached for his instructor's certificate. The landing competition held on Sunday, October 28, was a great success, and a team was chosen to compete against Reading. Visitors during the week included Mr. George Lowdell, in the Airspeed "Envoy." A party headed by Captain Davis flew to Lympne to welcome home Cathcart-Jones and Waller, but the airmen were held up by bad weather. However, Captain Davis flew up again on Friday.

HANWORTH

Flying hours last week totalled 63 hr. 50 min. First solos during the week were Miss A. Longstaff and Mr. K. Muttukamarisuami, and Mr. F. Bouchard successfully carried out his tests for his "A" licence. Special charter work in the last tests for his "A" licence. cluded taking a party to Brussels and return, two journeys to Abbeville, and one to Paris. The Monospar now at Hanworth (the one which won the King's Cup air race this year) has been kept very busy during the week on demonstration work. The first dance of the season at Hanworth was an enormous success, being very well supported by old and new members alike, and during the course of the dance a presentation was made to Captain J. B. Wilson, who has left Hanworth Club to take up the position of chief test pilot to the British Klemm Aeroplane Co.

THE FOUR WINDS

ITEMS OF INTEREST FROM ALL QUARTERS

A Gift for Melrose

Sir James Melrose, pastoralist and philanthropist of Ulooloo, South Australia, has presented his nephew, Mr. C. J. Melrose, with £500 in recognition of his flights from Australia to England and in the England-Melbourne Race.

Airship Pioneer's Death

The death occurred in Berlin on October 28 of Herr Herman Ganswindt, who invented and patented an airship in 1883, but was unable to secure financial backing with which to develop it. At one time he was considered a rival to Count Zeppelin.

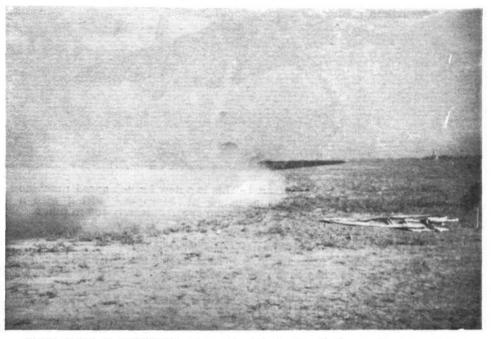
Wiley Post Aims High

While Wiley Post is spending a holiday bear hunting in Alaska, his round-the-world Lockheed "Vega," Winnie Mae, is being overhauled in preparation for further high altitude flights and possibly an attempt on the world's altitude record. During recent tests Wiley Post, in his supercharged and oxygen-fed suit, took Winnie Mae up to some 40,000 ft.

Twenty-five Years Ago

From "Flight" of November 6, 1909.

"Monday last was destined to see the longest flight yet performed in England, when Paulhan came near to beating Farman's world record, and very nearly equalling Latham's flight, which is second best. . . Although there was practically no wind, the weather conditions were not favourable for long-distance flying, and as the time went on Paulhan found a bad headache developing, through the extreme cold, and also his legs became cramped. He pluckily continued until he had been aloft 2h. 49m. 20s., and covered 96 miles, when the petrol gave out."



JUST LIKE A ROCKET: Actually this is Lt. Cathcart Jones and Ken Waller taking off in their D.H. "Comet" from Baghdad aerodrome, leaving a trail of sand dust. (Flight Photo.)

Kingsford-Smith in America

Sir Charles Kingsford-Smith and his co-pilot, Capt. Taylor, have reached America, and thus completed the 7,000mile flight across the Pacific from Brisbane. Sir Charles, it will be remem-bered, left Brisbane, in the Lockheed Lady Southern Cross, on Altair ' October 20, and flew non-stop to Suva, Fiji. Continuing on October 28, he flew to Honolulu—a hop of some 3,000 miles. Then, on November 3, he set out on the final stage of about 2,400 miles to Oakland, Calif., which he reached early next morning. Most of the trip was flown at a height of 7,000 to 8,000 ft., and during the night they encountered a storm. This is the first time the Pacific has been crossed in an eastward direction-in 1928 Sir Charles flew from America to Australia.

Speedy Scott

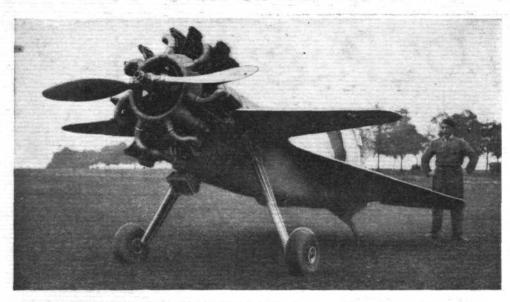
It is reported that Mr. C. W. A. Scott, having accomplished the fastest flight between this country and Australia, has written an autobiography, his "Life Story," including an account of the record-breaking England-Melbourne flight, which Hodder & Stoughton hope to publish early next month. Quick work, Scotty!

Help for Pilots' Dependants

The Royal Infant Orphanage, Wanstead, has come to the aid of the widow of Capt. W. R. Bannister (ex-R.A.F.), pilot of the air liner which crashed into the Channel on October 2. Mrs. Bannister was left totally unprovided for with five young children, and the Orphanage has agreed to take all five children into its care.



A CHEAP FRENCH LIGHT PLANE: The Brochet-Poinsard monoplane, which sells at 13,000 francs. Fitted with a 24 h.p. Poinsard engine (2-cyl., horizontally opposed, air-cooled), it has a speed range of 30-115 km/h (18.6-71.5 m.p.h.), and a fuel consumption of 5 litres per 100 km (about 60 miles per gallon).



CURIOUSER AND CURIOUSER! This is a new French speed machine designed by M. Payen and constructed at Etampes. Fitted with a 400 h.p. engine it is expected to attain a speed of nearly 400 m.p.h.!

To the Pole by Zeppelin

According to a report from Berlin, Prof. Dr. Weickmann is completing the plans for a Polar expedition with the aid of a Zeppelin airship-probably the new LZ 129 now building. It is proposed that the airship will convey a party of scientists to their base in the area to be explored-lying between the Pole, Alaska, and Wrangel Island—and pick them up again when they have completed their work.

Helping the Swallows

Once again has mechanical flight come to the aid of natural flight. It may be remembered that last year thousands of swallows in Central Europe were overcome by severe winter conditions, and survivors were transported by aeroplane to sunnier and warmer climes. A similar case is reported from Berlin, thousands of these birds, overcome by a sudden drop in temperature in Bavaria, having been packed in crates and transported by aeroplane to Italy.

New American Airship

America's large semi-rigid airship, the T.C.-14, has been completed and flighttested at Hammondsport, N.Y. airship, which will be stationed at Scott Field, Belleville, is being used at present for scouting and observation training work. It is 245ft. long, 50ft. maximum diameter, and of 400,000 cu. ft. capacity (helium gas). The car accommodates a crew of sixteen and is equipped with machine guns. Two engines of 300 h.p. each are installed, in addition to an auxiliary engine of 125 h.p.

British Aircraft Next week's issue of Flight will be a special number devoted to the British Aircraft Industry-machines, engines, and accessories.

A New Zealand-built Plane

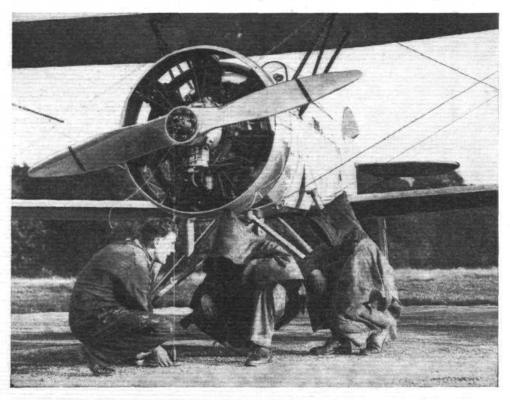
Two Auckland enthusiasts, R. G. Ouston and A. K. Crook, have designed and built a single-seater monoplane, fitted with a 9-cyl. Salmson engine. Its maximum speed is stated to be about 130 m.p.h., and its range 800 miles.

New Aircraft Named

It has been decided to give the names Boadicea and Britomart to the two Boulton & Paul aircraft under coustruction for Imperial Airways, and the names Avalon and Avatar to the two Avro aircraft.

Air Freight in Alaska

Aircraft have proved their worth in the transport of freight in parts of Alaska which are more or less inaccessible by land route. For instance, two pilots of the Alaska Exploration Co. provide the only means of transporting supplies to the Valdez district, where much prospecting is being done. Since February this year one of these pilots has transported fifty-one tons of supplies from Valdez to various camps, making about 300 flights for the purpose. Much of this freight was landed on high mountain plateaux with barely room enough to get on and off with the ski-mounted aeroplane.



THE INQUISITORS: Not of the Spanish variety, but mechanics at Woodford aerodrome in their hooded overalls, which afford them protection in bad weather.

Diary of Forthcoming Events

Club Secretaries and others are invited to send particulars of important fixtures for inclusion in this list

- "Speeds of Commercial Aircraft." R.Ae.S. Lecture Nov. 8.
- by M. Louis Breguet. Flying Boats." Mr. I. I. Sikorsky. R.Ae.S. Lecture by Nov. 15.
- Nov. 16-Dec. 2. 14th International Aviation Exhibition, Grand Palais des Champs-Elysees, Paris Nov. 21. "The Royal Air Force Training Year At Home," R.U.S.I. Lecture by Wing Com. L. L. MacLean
- R.A.F.

 Nov. 22. "Air Turbulence near the Ground." R.Ae.S. Lecture
 by Prof. Dr. Wilhelm Schmidt.
- Nov. 23. Lancashire Aero Club Ball, Midland Hotel, Man-
- Nov. 28. Hampshire Aeroplane Club Annual Ball, South Western Hotel, Southampton.
- "Engine Research." R. Ae. S.
- Nov. 30. Yorkshire Aeroplane Club Annual Majestic, Harrogate. Ball. Hotel
- Dec. 6. "Recent Progress of the Autogiro" R.Ae.S. Lecture by Senor Juan de la Cierva.
- "Recent Research in Metallurgy." R.Ae.S. Lecture by Dr. W. H. Hatfield.
- Dec. 18. Herts and Essex Aeroplane Club Annual Dinner and Dance, Park Lane Hotel, Piccadilly, London.

Brooklands

A nursery of aviation where many hopes were justified and not a few shattered, Brooklands has always been a centre of aeronautical interest and has grown steadily in importance. To-day there are within its confines examples of almost every branch of the aviation industry, from the manufacture of aeroplanes to flying instruction and facilities for private owners

By C. N. COLSON

B ROOKLANDS, that is, the racing track enclosing the space which is now used as the aerodrome, came into being because Mr. H. F. Locke-King realised, towards the end of 1905, that England would have to have a place where races could be held if our motor cars were to be developed so that they could hold their own with foreign productions. The motor car industry, therefore, as well as the aviation industry, owes him a large debt of gratitude. Mr. Locke-King entrusted the design of what was then often thought to be his folly to Col. Holden, and it was he who pointed out that the track would have to be banked.

The Start

By the end of 1906 the work was started and the middle of June, 1907, saw the completion of the first banked motor racing track in the world. This track surrounded a large area of comparatively flat ground, and it is that ground which has become Brooklands aerodrome. With the fortunes of the racing track we are not concerned here. They are fully dealt with in the book "Wheels Take Wings," written by Mr. Michael Burn in collabora-

Though built for motor car racing Brooklands has become one of our best known aerodromes

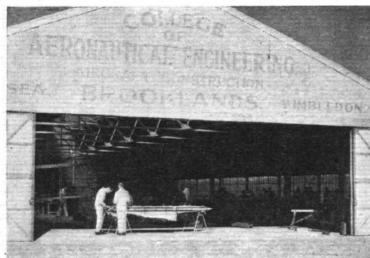
tion with Mr. Percy Bradley, the present manager of Brooklands.

The history of flying at Brooklands started almost at the same time as that of the car racing. In July, 1907, a Monsieur Bellamy arrived there with an aeroplane, which Mr. Locke-King allowed him to house in the area enclosed by the track. But although this gentleman is said to have flown at Modane, he did not seem so successful at Brooklands, and ultimately disappeared without having done very much.

At the end of 1908 Colonel (then Major) Lindsay Lloyd became Clerk of the Course, and one of his first suggestions for a scheme calculated to arouse more public enthusiasm in Brooklands was that the ground inside the track should be turned into a permanent testing ground for aeroplanes—machines about which very little was then known, but which invariably drew a large crowd whenever they appeared in public. Unfortunately, a committee of experts came to the conclusion that even if a wood, a farm and a gravel pit were removed, no aeroplane of that day could hope to clear the high banking of the track when taking off, so the scheme was turned down. Col.



An aerial view of the main Brooklands buildings. The large hangars are used by Hawker's, Brooklands Aviation and Vickers. The new club-house is in the foreground and on the left of the photograph is the range of wooden huts where many pioneers slept, ate, and housed their aircraft. These were recently pulled down and a large shed has been built by Hawker's in their place. (Flight Photo.)



Scenes in the various shops of the College of Aeronautical Engineering at Brooklands. At the top is the outside of the main building, in which general erection is done; below, the students are having an engineering lecture; on the right is the wood mill, and at the bottom two students are repairing the fabric covering of a wing. (Flight Photos.)

Lloyd, however, was not the man to be put off by a setback of this nature, and towards the end of the following year he invited Paulhan to come to Brooklands and give an air display. The ground which had been condemned was got ready, and on November 1st Paulhan delighted a record crowd of 15,000 people by remaining in the air for just under three hours and rising to a height of about 800 feet. From that day Brooklands was established as an aerodrome.

Two years before this Mr.

A. V. Roe, now Sir Alliott Verdon-Roe—had had a shed there, alongside one rented by Mr. (now Lt.-Col.) J. T. C. Moore-Brabazon "A. V.," as he is affectionately known, made many towed flights behind motor cars, but before he was able to do much he was ordered to leave by the authorities, who did not look with favour on flying. He came back in 1910, and in partnership with his brother, H. V. Roe, had more resources upon which to found one of our best-known aviation firms—A. V. Roe and Co., Ltd.

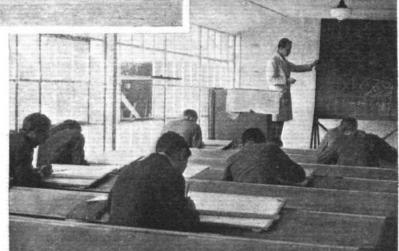
Early Pilots

"A. V." was only the first of a long line of names which have made aviation history, and which first became well known through their connection with Brooklands. The Hon. Alan Boyle, E. V. Sassoon, E. Petre and his brother H. A. Petre (who still flies his own aeroplane), Howard Flanders, F. P. Raynham, R. F. McFie, Mrs. Maurice Hewlett, T. Sopwith, "Jimmie" Valentine, Oscar Morison, G. H. Handasyde, Howard Pixton, Gordon Bell, Keith Davies, Graham Gilmour, and Harry Hawker are but a few names of pioneers who did so much to make aeroplanes what they are to-day.

Early Air Races

In 1910 air races were first arranged at Brooklands. In 1911 the Daily Mail flight round Britain started from there, and from then until the beginning of the war air races and displays were among the chief attractions of Brooklands.

During the war Brooklands was in the hands of the R.F.C., and many of the well-known war time pilots were trained there, including men like the two Salmond brothers, Sir Sefton Brancker and Lord Trenchard After the war Col. Lindsay Lloyd resumed his duties, and both the racing track and the aerodrome were gradually got back into peace-time order. Vickers, who had had a shed there during the war, took over the Itala works, and these became a large aircraft factory. In 1926 Col. G. L. P. Henderson started the Henderson School of Flying. Later on the H. G. Hawker Engineering Company, now Hawker







Aircraft, Ltd., took over some of the large aeroplane

In 1928 Capt. H. D. Davis, together with R. L. Oldmeadow and H. S. Hamilton, took over Col. Henderson's goodwill and started operations with three machines. The next step of expansion was made in the spring of the next year, when Capt. E. A. Jones was appointed Chief Instructor. His loss some years later was, perhaps, the severest blow that the School has ever suffered. It was not until the end of 1929 that the Brooklands School of Flying, Ltd., could call itself a sound undertaking—not that it wasn't always soundly run and conceived, but financially, like all undertakings of this nature, the vicissitudes through which it had to go were many, and before this date there was little evidence of a steady

demand for flying instruction and kindred subjects.

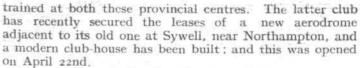
Once they became established by hard work and an enormous amount of self-sacrifice, however, they never looked back. In the beginning the school machines were housed in the range of old wooden sheds near the West Weybridge bridge over the track. Later on the machines were transferred to the large hangars.

Until the end of 1931 one of the school's many activities was joy-riding at Clacton as well as at other places,

more especially when there was a flying display arranged. At the end of that year joyriding was stopped, as the firm found that they had enough to do to cope with the work they had at home. Now they have blossomed out far beyond the original ideas.

Northampton and Lympne Clubs

The Cinque Ports Flying Club and Northampton Aero Club are both the property of Brooklands Aviation, Ltd., as the original firm is now called, and many pilots are



Another side of the Brooklands activities which has proved not only to be a valuable asset to the company but also to the private owners of aeroplanes, is the Repair Section, where large numbers of aeroplanes have been overhauled and rebuilt. This section, under the charge of Mr. J. W. Massey, a director of the firm, has been very thoroughly equipped, and is well able to cope with all kinds of work, both on aeroplanes and on engines.

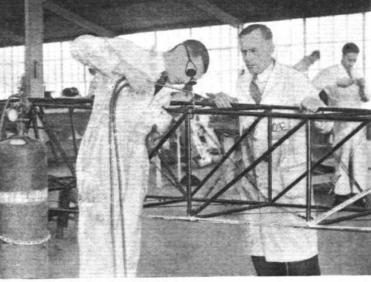
After the flying school had been in existence for some time a club—the Brooklands Aero Club—was formed, and an attractive modern club-house was built. There had been a Brooklands Aero Club before this, but it had more or less died a natural death many years previously. The members of this club have done much to carry on the traditional "matey" spirit which has always characterised those who have anything to do with flying at Brooklands.

It goes without saying that, as well as flying instruction, ground instruction of every kind can be had at Brooklands. This is a great advantage, as the private owner, just as much as one who is taking up flying for a livelihood, benefits from instruction in navigation, meteorology and kindred subjects. For those who feel that they want to

become rather better pilots than the average there are courses in instrument flying, advanced aerobatics and every branch of piloting.

Affiliated with Brooklands Aviation is the College of Aeronautical Engineering. This College has its headquarters in Sydney Street, Chelsea, where the students are taught the rudiments of aeronautical engineering. After being well grounded there they go on to the large new shops which have been erected for them at Brooklands. These shops are entirely separate from those of Brooklands Aviation, and in them the students receive the most thorough training





These further views of the College shops were taken in the wood mill; in the sheet-metal shop, where radiator repairs are done and cowlings are beaten out of sheet aluminium; in the welding shop, where metal fuselages are welded up in jigs and various welded fittings are made; and in the general erection shop where the fuselages and wings are assembled to make complete aeroplanes.

(Flight Photos.)

Many aircraft are overhauled for the renewal of their certificate of airworthiness every year in this Brooklands Aviation repair shop. (Flight Photo.)

possible in every branch of engineering connected with the construction and maintenance of aeroplanes.

Ground Training

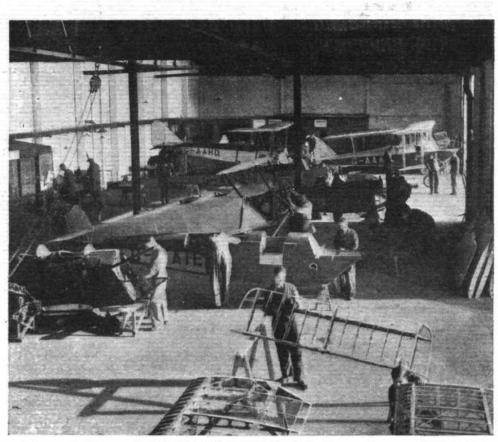
During this time they are enabled to go in for the examinations for Ground Engineers' licences, without which no one is allowed to work on aircraft. After they have finished at Brooklands they get practical experience with manufacturers and operators by means of a scheme worked in co-operation with the majority of such concerns. The College has its own flying club at Brooklands, and many of the students learn to fly.

Of recent years there has been very considerable development at Brooklands. Both the Vickers Aviation and the Hawker Aircraft Companies have grown largely. Seldom a day passes without spectators being able to see several military

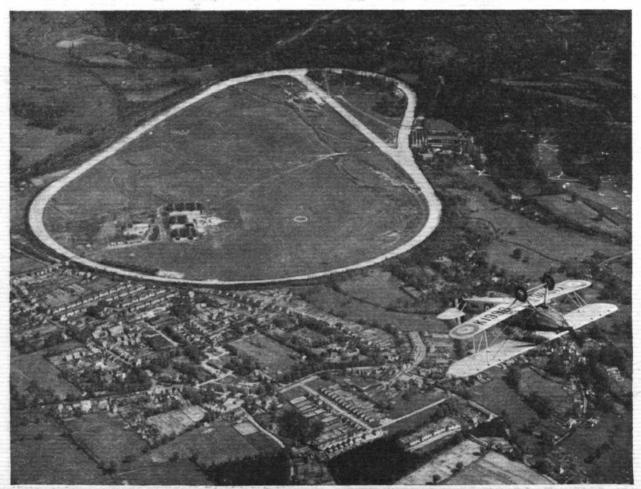
aeroplanes of the very latest types being put through their

tests preparatory to their delivery.

The Brooklands Aero Club has been given a new lease of life. Since the time when it was certain that the Brooklands School of Flying was going to be a success, well-known people like Dame Ethel Locke-King, Mr. Tom Sopwith, Mr. Fred Sigrist, Mr. A. Percy Bradley, Flt. Lt.



P. W. S. Bulman, and others have done a great deal to place the new club on its feet. These enthusiastic helpers all take a personal interest in the welfare of the club, so that, out of the small beginnings with which the aero-drome started, the modern Brooklands has grown to be one of the places to which everyone connected with flying goes sooner or later-generally sooner.



This Hawker "Fury" has done a half roll shortly after taking off from Brooklands and is still climbing steadily on its back. The Vickers aircraft factory is just outside the track by the "fork." (Flight Photo.)

THE TALE OF THE "COMET"

By C. C. WALKER

Speed: Airworthiness: Long Range

THE production of a machine suitable for the Australia Race naturally occasioned much thought and discussion. The requirements were quite different from any other speed event, because compliance with airworthiness regulations was required, and, still more important, as long a range as possible is obviously desirable in a long race. Since a substantial saving in distance would ensue if a direct flight to Baghdad could be made, it was necessary to see if it was possible to lift over the airworthiness screen a sufficient weight of petrol to fly to Baghdad, a distance of between 2,500 and 2,600 miles, without landing. This meant, including a minimum safe reserve, 2,900 miles' range.

Until the time this design was started, a range under Certificate of Airworthiness conditions exceeding 2,400 miles had not been achieved, and the machines coming closest to this range were slow and therefore unsuitable. It had also to be decided whether, if 2,900 miles' range could be secured, the policy of going for the range and carrying no wireless and other equipment, on the one hand, or the policy of going for higher speed with supercharged engines and shorter range, on the other hand, was best. The second of these alternatives would permit the use of wireless, etc. It was apparent that if the long range could be obtained it was the thing to go for.

Fuel Economy

Since economy in petrol consumption was so important, the choice of engines which would deliver the largest possible fraction of their "indicated" power to the air frame as thrust horse-power was necessary. Among the several alternatives examined as being available, it was considered that the six-cylinder in-line engine, with its very small frontal area per horse-power, offered the best solution.

The question of supercharging was thoroughly explored, but finally rejected. At first sight it is tempting to go for the greater speed which would be obtainable, but since one could hardly hope (for 2,900 miles' range) to use power at a greater rate than two-thirds of that available for lifting the petrol over the screen, the use of superchargers would have involved flying at a great height to obtain the above condition.

The governing considerations, then, on which the design was commenced last March were something like this:—

The greatest weight of petrol per horse-power must be lifted over the screen, therefore fixed pitch propellers were right out of the question. This petrol must be used as economically as possible, but at the highest speed obtainable, and in any case at not less than 200 m.p.h. The aeroplane must be large in order to lift the petrol and small in order to go fast economically. Without dealing with these things in any detail, it is evident that flaps are necessary when keeping the size down, and retractable undercarriage for keeping speed and economy up.

It will be seen that all the points which must be aimed at are merely those governing the design of fast commercial aeroplanes, and this is presumably what was aimed at by the promoters. No aeroplane specially designed for the race could deviate very far from the main characteristics of a commercial aeroplane.



TEAM WORK: The men responsible for the "Comet." From left to right, Mr. A. E. Hagg (chief designer), Capt. G. de Havilland (technical director), Major F. B. Halford (designer of the "Gipsy-Six" racing engine), Mr. F. T. Hearle (general manager), and Capt. C. C. Walker (chief engineer), of the De Havilland Aircraft Company.

In the short time available for tests on the "Comet," it was found that a consumption of less than 20 galls./hour could be obtained at a speed of 225 m.p.h. and an operational height of 10,000 ft. The engines were tested for a greater duration than that of the Race under these conditions. The great importance of the mixture control will be evident. If the engines were run over-rich the range would be jeopardised; if over-weak, trouble would be expected from overheated pistons, etc.

There is, however, a tolerably wide zone of satisfactory operation, and greater range at a satisfactory mixture strength could be obtained by flying higher and slower. So far as can be ascertained, consumptions of 16 or 17 galls./hour have been obtained in the Race, so it is likely that the "higher-and-slower" policy was adopted.

Not a Racer

The "Comet" is generally referred to as a racing aeroplane, and to the extent that it was designed for the Australia Race, and has not a large and commodious cabin, this is true. It differs, however, very greatly in other respects from a racing machine. The operational conditions (which it is believed were adhered to) were that full throttle at 10,000 ft. or over should be employed. This means (at the r.p.m. allowed by the propeller) that 75 per cent. or less of the type-test power for continual operation was used in the Race. The machine also complied with the International Airworthiness conditions on its full load. A further point is that in using only three-quarters of the "continual operation" power a specific consumption could be used which was much lower than has ever been contemplated for racing purposes.

Perhaps the forced landings by night and full-load landings by night which took place during the Race might also be adduced to show that the rules of the Race do tend to exclude what is generally understood by the term "racing machine."

A recent article on "Controllable Pitch Propellers" in Flight indicated the gains which could be secured in designs which made full use of flaps, retractable undercarriages, c.p. propellers, etc. There is nothing new in these appliances, and the more recent American commercial aeroplanes have already made full use of them, with results which have caused universal admiration.

Conditions in the British transport industry have not yet demanded this kind of synthesis, and perhaps the "Comet" may be looked upon as a full-scale demonstration (subject to certain qualifications, some of which have already been dealt with) that speeds may be increased by a very large amount without sacrifice of pay load by making the best use of known devices.

Without Sir Macpherson Robertson this demonstration might have had to wait some time.

ROYAL AIR FORCE

Service Notes and News

Air Ministry Announcements

NOMENCLATURE OF AIRCRAFT-" SHARK"

The official name of the Blackburn T.S.R. aeroplane with "Tiger" engine is "Shark." This name is to be used in all correspondence and reports relating to this type of aeroplane.

RUSSIA

According to the German Press, 32 American officers are to be engaged as instructors to the Russian Air Force.

THE CHITRAL RELIEFS

Every two years a column of troops is despatched from the North-West Frontier Province in India to relieve the garrison of Chitral, and this march is always a matter of some anxiety to the military authorities. Recently the Chitral relief column was attacked by some Pathans of tribes hostile to the friendly prince entitled the Nawab of Dir. Bomber aeroplanes of the Royal Air Force attacked the tribesmen and punished them severely.

H.M.S. FURIOUS

-H.M.S. Furious rejoined the Home Fleet on October 24, 1934, on return from temporary service with the Mediterranean Fleet. The following squadrons disembarked to the stations shown:—No. 801 (F.F.) Squadron to R.A.F. Station, Upavon, on October 24; No. 822 (F.S.R.) Squadron to R.A.F. Station, Manston, on October 24; and No. 812 (T.B.) Squadron to R.A.F. Station, Hal Far, on October 13, on ceasing to be attached.

No. 84 SOUADRON REUNION DINNER

The second annual reunion dinner of No. 84 Squadron will be held at the Royal Air Force Club, 128, Piccadilly, W.I, on Friday, November 23, 1934, at 7.30 p.m. Evening dress (tail coats with decorations) will be worn. Applications for tickets—7s. 6d. each, exclusive of wines—should be sent, with remittances, to: C. L. Stubbs, Esq., Royal Air Force Club, 128, Piccadilly, London W.I

FIRST ANNUAL UNITED SERVICES BALL

The first annual United Services Ball, in aid of the Ex-Services Welfare Society, will be held at Grosvenor House Hotel, Park Lane, S.W.I, on Wednesday, November 7, 1934. Tickets, 35s. each, including supper, champagne and buffet, may be obtained at the reduced price of 30s. each by officers of the regular Air Force and Auxiliary Air Force. Personnel serving in home commands should address applications for tickets, and for reserved tables if desired, to: Squadron Leader R. F. S. Leslie, D.S.C., D.F.C., A.F.C., Headquarters, Air Defence of Great Britain, Royal Air Force, Hillingdon House, Uxbridge, and those serving in the Air Ministry should apply to Wing Commander H. P. Lale, D.S.O., D.F.C., Room 532, Adastral House.

SPECIALIST NAVIGATION COURSE, CALSHOT

The undermentioned officers, having successfully completed the Specialist Navigation Course at the R.A.F. Base, Calshot, which terminated on August 31, 1934, are entitled to the symbol "N":—F/O.'s G. G. Barrett, P. E. Hudson, K. W. Niblett, and J. A. Powell.

PRIVATE MOTOR VEHICLES ON DUTY JOURNEYS

An officer, airman or civilian official, permitted to use his private motor vehicle on duty journeys must ensure that his insurance policy covers the use of the vehicle on official business and that the policy is not held to be invalidated by the carriage of official passengers in respect of whom an additional allowance is admissible; it is necessary to have the policy suitably endorsed to this effect, or to obtain an appropriate assurance in writing from the insurers.

PARACHUTES-TRAINING OF AIRMEN

As a result of the inclusion of parachute repair and maintenance in the training syllabus of fabric workers a parachute training section for airmen will be set up at Manston. All necessary training of airmen employed in parachute sections will be transferred from Henlow to that station from January 1, 1935, and will then come under the direct control of the Air Ministry (Directorate of Training).

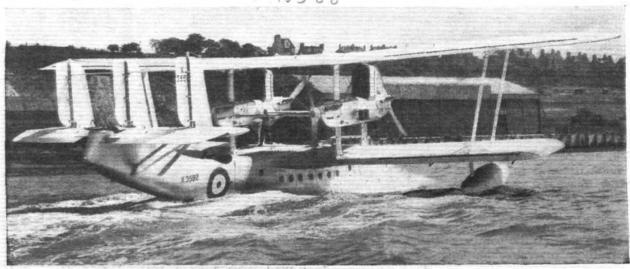
Training).

The length of the courses of instruction at Manston for airmen will vary with individuals but will not exceed 28 days.

THE ROYAL AIR FORCE BENEVOLENT FUND

The usual meeting of the Grants Committee of the above Fund was held at Iddesleigh House, on Tuesday, November 1, 1934. Mr. W. S. Field was in the chair, and the other members of the Committee present were Mrs. L. M. K. Pratt Barlow, O.B.E., and Wing Com. H. P. Lale, D.S.O., D.F.C. The Committee considered a number of cases, and made grants to the amount of £341 2s. 6d. The next meeting was fixed for Thursday. November 1s.

10588



A "Singapore III" flying boat (4 "Kestrels") of the type in which Sir Philip Sassoon recently flew from England to Egypt. That boat belongs to No. 210 (F.B.) Squadron at Pembroke Dock. (Flight Photo.)

R.A.F. STAFF COLLEGE

In order to give to officers who already possess a good knowledge of foreign languages the opportunity of entering the Staff College, a bonus of marks will be added to the marks obtained in the examination by those candidates who have passed certain examinations in recognised modern languages. Only one language will be allowed to count. The bonus marks vary from 300 for a preliminary examination for an interpretership up to 500 for an interpretership in Urdu or a higher standard in Pushtu.

STUDY OF FOREIGN LANGUAGES

The undermentioned officers and airmen passed the examinations held in June, 1934:-

ARABIC

Colloquial

Sqd. Ldrs. E. H. Hooper, S. E. Storrar, and G. Y. Tyrrell, M.C. Flt. Lts. S. O. Bufton, R. K. Muir, M.D., C.M., J. R. Mutch, and G. K. Tulloch. F/O.'s J. H. Barnes, D. R. Shore, and H. A. Sudbury, A/C.r Acting Corporal W. N. West.

Preliminary

F/O.'s E. J. Corbally and B. A. Fraser.

Interpretership (2nd Class)

F/O.'s K. R. Coates and A. E. Fairs, M.C.

FRENCH

Preliminary

Flt. Lts. J. C. Cunningham, F. F. Kennedy, L.D.S., and F. R. Worthington. F/O.'s T. W. Hodgson, E. C. Smith-Ross, and R. E. de T. Vintras. L. A/C.'s J. Willes and R. Rogers.

Interpretership (2nd Class)

Wing Com. R. L. G. Marix, D.S.O., Flt. Lt. V. J. Sofiano, F/O. A. N. Spottiswoode, Sgt. F. Holt, L. A/C. W. H. J. Daw.

Interpretership (1st Class)

Sqd. Ldr. E. D. D. Dickson, M.B., F.R.C.S. (E), D.L.O.

Preliminary

F/O.'s W. E. Oulton and A. N. Spottiswoode, Flt. Sgt. A. R. Williams.

Interpreter (2nd Class)

Flt. Lts. C. A. Hoy, M.C., and L. de L. Leder.

Preliminary

Sqd. Ldr. H. O. Long, D.S.O.

Interpretership (1st Class) (Requalification)

Sqd. Ldr. F. M. F. West, V.C., M.C.

MALAY

Colloquial

F/O. N. G. Goodman, L. A/C. L. R. Green, A/C.2 H. C. Morris.

Persian

Preliminary

Flt. Lt. V. Harris.

SPANISH

Interpretership (2nd Class)

Sqd. Ldr. H. E. Walker, M.C., D.F.C., Flt. Lt. F. E. R. Dixon, M.C., F/O. J. A. Dixon.

ROYAL AIR FORCE GAZETTE

London Gazette, October 30, 1934

General Duties Branch

The folig. Flying Officers are promoted to the rank of Flight Lieutenant:—K. A. K. MacEwen (Aug. 1); L. E. Jarman (Aug. 22). P/O. J. F. Hobler is promoted to the rank of Flying Officer (Sept. 21); Wing Com. N. H. Bottomley, A.F.C., is granted the acting rank of Group Captain with effect from Oct. 4; P/O. P. S. Gomez is restored to full pay from half-pay (Oct. 17); Lieut. J. H. McI. Malcolm, R.N., Flying Officer, R.A.F., relinquishes his temporary commission on return to Naval duty (Oct. 6); F/O. F. C. Tracey (Lt., York and Lancaster Regt.) ceases to be seconded to the R.A.F. on return to Army duty (Sept. 27); F/O. N. P. Samuels takes rank and precedence as if his appointment as Flying Officer bore date Sept. 29, 1933; reduction takes effect from Sept. 25; F/O. W. A. A. Ashcroft is cashiered by sentence of General Court-martial (Aug. 28).

Medical Branch

Flt. Lt. (Hon. Sqd. Ldr.) F. J. P. Saunders, M.R.C.S., L.R.C.P., relinquishes his temporary commission on completion of service and is permitted to retain the honorary rank of Sqd. Ldr. (Sept. 4).

Commissioned Engineer Officer

Flying Officer on probation W. J. Loughhead is confirmed in rank (Sept. 11).

Commissioned Signals Officer

Flying Officer on probation W. G. Swanborough is confirmed in rank (Sept. 11).

ROYAL AIR FORCE RESERVE

Reserve of Air Force Officers

General Duties Branch

Pilot Officer on probation S.W. Fitt is confirmed in rank (Sept. 6); Flt. Lt. H. A. Howes is transferred from class A to class C (June 5); Flt. Lt. R. N. Riddell is transferred from class C to class A

The folls relinquish their commission on completion of service and are permitted to retain their rank;—Flt. Lt. G. I. Thomson, D.F.C. (Aug. 4); F/O. R. G. Mullette (Sept. 12).

F/O. P. V. Mackinnon resigns his commission (July 28).

Medical Branch

N. P. Henderson, M.B., Ch.B., is granted a commission as Flight Lieutenant in class D (Oct. 19).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:-

General Duties Branch

General Duties Branch

Squadron Leaders.—A. C. Bayley, to No. 12 (B) Squadron, Andover, 21.10.34. To command vice Sqd. Ldr. A. C. Collier. V. S. Parker, D.F.C., to R.A.F. Base, Singapore, 16.10.34. For administrative duties. G. C. Gardiner, D.S.O., D.F.C., to No. 4 Flying Training School, Abu Sueir, Egypt, 23.10.34. For duty as Chief Flying Instructor vice Sqd. Ldr. J. J. Williamson, A.F.C. Flight Lieutenants.—W. D. Gairdner, D.F.C., to No. 100 (B) Squadron, Singapore, 16.10.34. E. L. J. Rowe, to No. 3 Flying Training School, Grantham, 22.10.34. W. N. H. Banks, to No. 2 Flying Training School, Digby, 22.10.34. A. F. Britton, to R.A.F. Depot, Middle East, Aboukir, 23.10.34. E. A. C. Britton, D.F.C., to No. 5 Flying Training School, Scaland, 24.10.34. J. Cherrill, to Station Headquarters, Ismalia, Egypt, 22.10.34. R. F. Fletcher, to R.A.F. Depot, Middle East, Aboukir, 23.10.34. W. J. W. Homer, to R.A.F. Depot, Middle East, Aboukir, 23.10.34. W. J. Millen, to No. 2 Flying Training School, Digby, 22.10.34. R. F. Gandy, to No. 2 Flying Training School, Digby, 22.10.34. R. F. Gandy, to No. 2 Flying Training School, Digby, 22.10.34. R. F. Gandy, to No. 2 Flying Training School, Digby, 23.10.34.

No. 2 Flying Training School, Digby, 22.10.34. R. F. Gandy, to No. 2 Flying Training School, Digby, 23.10.34. Flying Officers.—R. G. C. Arnold, R. G. Harman, I. V. Hue-Williams, C. S. Moore, and G. E. B. Nixon, to No. 2 Flying Training School, Digby, 22.10.34. H. P. Broad, N. E. Morrison, M. W. S. Robinson, and U. Y. Shannon, to No. 3 Flying Training School, Grantham, 22.10.34. E. J. F. Davy and F. C. Seavill, to No. 5 Flying Training School, Sealand, 22.10.34. G. F. W. Heycock, to Central Flying School, Wittering, 22.10.34. H. A. V. Hogan and J. Whitehead, to R.A.F. Base, Leuchars, 22.10.34. W. H. Kyle and J. W. C. More, to Royal Air Force College, Cranwell, 22.10.34. D. G. Morris, to R.A.F. Base, Gosport, 22.10.34. R. L. Wilkinson, to Station Flight, Duxford, 22.10.34. G. Hinckley, to No. 24 (Communications) Squadron, Hendon, 23.10.34. G. N. Warrington, to R.A.F. Depot, Middle East, Aboukir, 23.10.34. R. G. M. Apthorp,

to Marine Aircraft Experimental Establishment, Felixstowe, 24.10.34. R. C. M. Collard, to Electrical and Wireless School, Cranwell, 23.10.34.

Pilot Officers.—D. Prowse, to Communication Flight, Iraq, 1.10.34. M. A. Aylmer, to No. 14 (B) Squadron, Amman, Palestine, 23.10.34. J. Thompson, to No. 208 (Army Co-operation) Squadron, Heliopolis, Egypt, 23.10.34.

Acting Pilot Officers.—The following Acting Pilot Officers are posted to R.A.F. Depot, Uxbridge, on 19.10.34 on appointment to short service commissions:—A. G. G. Baird, R. D. Blair, A. C. Brown, F. S. D. Burgis, A. A. Case, A. J. F. Churchill, R. N. Cook, M. P. C. Corkery, R. I. K. Edwards, R. M. Elms, T. A. N. Forsyth, C. E. Herington, F. H. Hitchcock, T. S. Jameson, M. M. Kane, C. F. King, C. Kirkley, H. R. Larkin, J. R. Maling, F. L. Newall, B. L. Powell, A. E. Saunders, S. R. R. Smith, P. Stevens, H. T. Sutton, J. M. M. Thompson, N. R. L. Urquhart, K. M. M. Wasse, D. C. Yorke.

Stores Branch

Flight Lieutenants.—J. E. R. Sowman, to Headquarters, R.A.F. Middle East, Cairo, 23.10.34. P. H. Wilcox, to R.A.F. Depot, Middle East, Aboukir, 23.10.34. Flying Officer .- D. F. Syder, to Headquarters, R.A.F. Middle East,

Cairo, 23.10.34.

Accountant Branch

Flying Officers.—F. C. Hayward, to R.A.F. Base, Kai Tak, 16.10.34. W. J. R. Cann, to Headquarters, R.A.F. Middle East, Cairo, 23.10.34.

Chaplains Branch

Rev. J. A. Jagoe, M.A., to Headquarters, R.A.F., Far East, 16.10.34. For duty as Chaplain (C. of E.)

THIRD IN THE SPEED RACE

Another Interesting American Commercial Type Described—the Boeing 247-D. This is an Improved Version of the 247, a Fleet of which were Delivered to United Air Lines last year

SIXTY Boeing 247 ten-passenger monoplanes were delivered to United Air Lines during 1933.

On being put into service, these machines cut existing times on the coast-to-coast, Pacific coast and other routes of that company by roughly one-third.

After completing this batch of 347's the Boeing Company proceeded with work on seventeen machines of similar basic design, but incorporating a number of important improvements, and known as model 247-D. Three were shipped to Germany for Deutsche Luft Hansa, another was flown by





(Above) An impressive view of the latest Boeing. N.A.C.A. cowlings have replaced the short-chord cowlings fitted to the 247 and three-bladed Hamilton-Standard airscrews are used.

(Left) The control cabin of the 247-D, showing the mounting of the wireless aerial, the normal screen and the sliding side window.

Roscoe Turner and Clyde Pangborn in the MacRobertson Speed Race, and finished third, ten have just been delivered to United Air Lines, and the remaining three are due for completion this month.

During tests the 247-D showed substantial increases in speed, range, ceiling, rate of climb, and in performance on a single engine, when compared with its predecessor. Because of the high strength factors of the 247 the new type has been licensed for a gross weight of 13,650 lb., of which the payload, including the passengers, baggage and

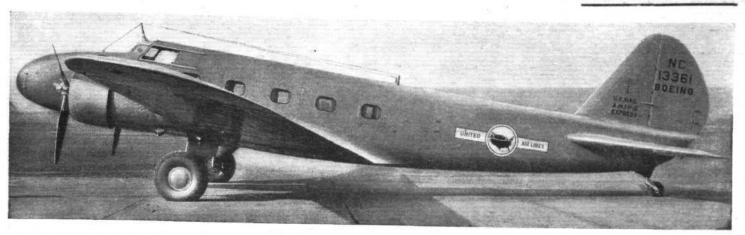
cargo, accounts for 2,582 lb.

Two geared and supercharged Pratt and Whitney "H" series "Wasp" nine-cylinder radial engines, operating in N.A.C.A. type cowlings, and driving three-bladed Hamilton Standard controllable-pitch airscrews, are now fitted. On the original 247's direct drive "Wasps," short-chord cowlings, and two-bladed "controllables" were used. The installation of the new power plants was the chief factor contributing to the greatly improved performance when flying on only one engine. In this condition the ceiling is 11,500 feet, or 6,500 feet better than that of the 247.

BOEING 247-D
Two Pratt and Whitney "Wasp" SIHI-G
(550 h.p. at 2,200 r.p.m. at 8,000 ft.)

DIMENSIONS. ... 74 ft. (22,6 m) Length ... 51 ft. 4 in. (16,25 m) ... 836.13 sq. ft. (77,6 m2) Wing Area ... WEIGHTS. Weight empty 8,940 lb. (4 055 kg) ... 4,710 lb. (2 136 kg) PERFORMANCE. Top speed at 8,000 ft. (2 438 m) 200 m.p.h. (321 km/h) ... 189 m.p.h. (304 km/h) Cruising speed at 12,000 ft. (3 658 m) Cruising speed at 8,000 ft. (2 438 m) 180 m.p.h. (290 km/h) ... 62 m.p.h. (100 km/h) Landing speed *** *** *** *** ... 800 miles (1 287 km) Absolute ceiling 11,500 ft. (3 353 m)

Commercial Aviation



The new Boeing 247-D has shown a marked improvement in performance on the 247. The engines are geared and supercharged nine-cylinder Pratt and Whitney "H" type "Wasps."

On two engines the top speed is 200 m.p.h. and the cruis-

ing speed, at 12,000 feet, 189 m.p.h.

Not only has performance been increased but the cabin has been made quieter. Features contributing to the latter include new cabin sound insulation, the elimination of individual ventilators, and the reduction of airscrew tip noise resulting from the use of geared engines. The new ventilation system embodies two intakes for fresh air with distributor ducts along the cabin ceiling, and two air outlets at the base of the cabin walls. Improved headrests on the adjustable reclining chairs are another innovation.

Flush rivets are used round the leading edge of the wing and tail-plane, and metal framework with fabric covering is now employed for the elevator and rudder in the place of all-metal construction used in the 247.

Built into the trailing edge of the rudder is a flap of divided type, the top half acting as an aerodynamic balance and the lower half serving as a trimming flap. The pilot's windshield now slopes backwards instead of forward. Incidentally, this change has also been made in certain other American transport types, so the N.A.C.A., right in theory, may have been proved wrong in the light of practical considerations.

CROYDON

Control Zone Hardship: The Real Usefulness of the K.L.M. Eastern Service: Horseferry House: Guy Fawkes' Day at the Airport

N nautical circles, the "yellow jack" denotes plague, and in aeronautical life, at Croydon, anyway, the butter-cupcoloured disc with the sinister letters Q.B.I. hung from the control tower rail, denotes that our particular plague, fog,

Q.B.I. does not necessarily mean fog too thick to fly through, but weather in which it is not safe to allow the normal number of machines within the "control zone" around the terminal Traffic control is necessary in such circumstances,

but it is none the less annoying.

Last week, for example, a K.L.M. pilot, who would have had no difficulty in reaching Croydon, was instructed not to enter the control zone as five machines making for Croydon were ahead of him. Five machines in conditions of poor visibility may take an hour to reach their terminus. The K.L.M. machine, therefore, landed at Gravesend. Dr. Colyn, the Netherlands Prime Minister, was on board, as well as a full complement of passengers.

Private owners who grumble at Q.B.I. will realise that the companies themselves suffer from it in the interests of public

safety-without grumbling.

Telephone communication with Gravesend is not too good, and there should be a private line between Croydon control and Gravesend airport. In this case the wireless operator of the machine kept in touch with the Croydon control tower by short wave from the ground.

This was useful, but not extraordinary, as a recent example showed. An amateur somewhere in South Africa picked up an Imperial Airways machine on short wave when the machine

was flying between Alor Star and Singapore.

Mention of Singapore reminds me that recent comparisons between Imperial Airways and K.L.M. services to the East, though possibly justified by ill-informed statements in the newspapers, are a little misleading. The K.L.M. service is not from London but from Amsterdam, and no connection exists on the same day, though London-Amsterdam is only a matter of a couple of hours' flying. This is due to the very early start from Amsterdam every Thursday morning in winter. In summer the connection with London can easily be made by the 7.0 a.m. service from Croydon, and this, of course, saves a whole day.

The really important point in this matter, surely, is that the

K.L.M. service affords an extra link with Singapore and the East during the week, and that letters and travellers may leave

London every Wednesday as well as every Saturday.

Last week both Lord Londonderry and Sir Philip Sassoon were seen at Croydon making use of Imperial Airways services. The latter was returning from his 20,000-mile tour of R.A.F. stations out East, during which he flew both in R.A.F. and Imperial Airways aeroplanes.

Air France is combining with K.L.M. in the use of the new London terminus, Horseferry House. I understand that interior decorations will be on modern lines, carried out in blue, silver and red, and that there will be mural paintings by a well-known Dutch artist. An architect from Holland, Mr. Rosenberg, is in charge of interior decoration. It is felt that an air terminus should break away from the somewhat gloomy, Victorian ideals of shipping and railway termini. Horseferry House gives a clear, fast run across Lambeth Bridge, and the time between town and airport should be lessened. The difficulty is that the Traffic Commissioner is apt to insist on coaches taking a longer and more tortuous route than is necessary, as a rule through unlovely slums, if these are available.

Olley Air Service, Ltd., collected Steve Donoghue after the Hurst Park races, flew him to Paris, and thus allowed him to catch the Blue Train for Marseilles, where another mount awaited him. When it is a question of hustle and of making judicious use of air transport, there is never any need to cry "Come on, Steve!"

It is not usual to have any excitement in Customs at Croydon, but one day last week a traveller from Paris is alleged to have been found with opium pipes and similar impedimenta in his possession.

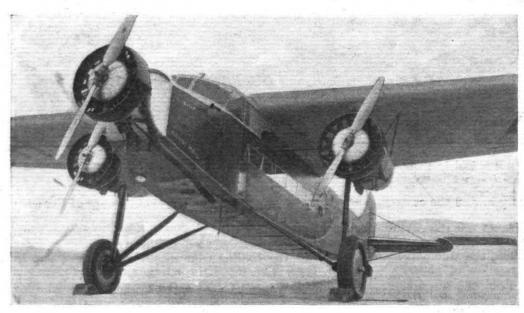
Col. Fitzmaurice and the "Irish Swoop" still await owners' instructions at Croydon.

Curiously enough, November 5 was firework day at Croydon. Q.B.I. was in force, and all that morning rockets were being sent off and coloured lights fired from the control tower.

October passenger figures were more than satisfactory. 10,000 Continental passengers passed through the airport, and a considerable number of passengers also travelled by internal routes.

A. VIATOR.

K.L.M. Organise an Atlantic Crossing: A Fokker F.18 to make a Flight to Curação: Possible Developments in South America





COMMANDER AND CRAFT: The Fokker F18, Snipe, which will make the Atlantic crossing next month, and her commander, J. J. Hondong.

OW that the Australia race is over K.L.M. will not rest on her laurels. The next flight arranged is one to Curação, in the West Indies, where the 300th anniversary of Dutch rule was recently celebrated.

1182

But for the increase of traffic on European and Far Eastern lines of the company this flight would have been made during the July celebrations, and it is now fixed for December, when, as it happens, better weather conditions may be expected.

At first it was intended to follow the 7,582-mile route, Amsterdam, Casablanca, Dakar, Natal, Paramaribo, Curaçao, crossing 1,888 miles of ocean. Air France, however, has recently made use of landing grounds on some of the Cape Verde Islands: Santiago, for example, near Porto Praja, and Majo. The Arc-en-Ciel, piloted by Jean Mermoz, regularly landed there in the course of that pilot's magnificent flights to South America.

The K.L.M. flight will, therefore, follow the shorter route, direct from Porto Praja to Paramaribo, the capital of Netherlands Guiana. The flight will be shorter by 1,094 miles, though the ocean crossing will be 2,244 miles. It is expected that the machine will have a following wind so that the longer sea crossing will not take much more time than the shorter Dakar-Natal stretch.

The flight will be made in one of the K.L.M. Fokker F18's which have done such noble service on the Amsterdam-Batavia route.

Some slight alterations have been made to the machine. he three "Wasp" Cs have been replaced by "Wasp"

Ti Di (525 h.p.) engines with Hamilton variable pitch air-screws, and the cruising speed will be 144 m.p.h. Six extra fuel tanks will be fitted, giving a tankage of 1,100 gallons and a flying range of 3,000 miles. Long- and short-wave wireless equipment will be fitted, and, thanks to the co-operation of the Netherlands Royal Navy, a submarine now on a scientific world cruise will be stationed in mid-ocean between the Cape Verde Islands and Paramaribo. The direction finder of the submarine should be of considerable value to the navigator.

The F18, Snipe, will be captained by Hondong, one of the very senior K.L.M. pilots, with van Balkom as first officer, van der Molem as wireless officer, and Stolk as flight engineer. The Snipe will leave Amsterdam on December 15 or 16, and will leave Cape Verde Islands before sunset on December 19 or 20. Christmas mail for the West Indies will be carried from Holland.

The aim of the company in despatching this aeroplane is a commercial one, and after its arrival it will be refitted as a normal service machine. Until 1932 Pan-American Airways touched at Curação, and thus there were air connections with North and South America and with the principal islands of the Caribbean Sea. The first task of the K.L.M. will be to reorganise these connections and link up with the widespread P.A.A. network of airlines. There should also be need of air routes between Netherlands possessions in that part of the world-for example, between Curação and Aruba.

With the improvement of the economic situation it should be possible to found a branch of K.L.M. in the West Indies.

A New Zealand Air Service

Cook Strait Airways is the name of an operating firm in New Zealand of which one of the principal shareholders is the Union Steamship Company. In due course they will fly twinengined machines-concerning which a technical adviser is to be sent to England-from Wellington across Cook Strait to Blenheim and Nelson.

New Glasgow-London Schedule

Once again the time-table for Railway Air Services' Glasgow service has been altered to suit the customer. The northbound machine now leaves Croydon at 10.15 a.m. instead of 9.45 a.m., and the southbound machine leaves Glasgow at 8.20 a.m. instead of 9 a.m.

While D.H.86s are used on the Croydon-Belfast section, "Dragons" will be used on the Belfast-Glasgow portion of the route, and the machines no longer call at Birmingham and Manchester. However, they call at Speke for the convenience of passengers in the north.

In Malaya

The Kedah Government has voted the sum of \$5,000 for improvements to the Alor Star aerodrome drainage system, and the plans are being pressed forward so that the aerodrome will be serviceable in all weathers.

New England Airways

Lord Sempill, who is flying to Australia to attend the Melbourne centenary celebrations, will also be making his visit to the Commonwealth one of business interest.

Lord Sempill is on the London board of Oceanic Airways of Australasia, the Chairman of which is the Rt. Hon. W. M. Hughes. This Company, in conjunction with British Pacific Trust, recently acquired New England Airways, and the new company recently placed an order with General Aircraft, Ltd., for ten Monospar machines to act as feeders on the Brisbane-Melbourne route. For some of the main lines it is expected that Douglas D.C.2's will be used, and larger Monospar machines, at present under construction, will also be employed.

HERE AND THERE



NEW REGIME: On October 28 Mussolini celebrated the anniversary of Rome's capitulation to Fascism by, among many other ceremonies, in-augurating the new combine of all the Italian Air Lines into one body called Ala Littoria, which means, in a broad sense, the Fascist Wing. Our photograph, taken at the seaplane port of Ostia, near Rome, shows men painting out the company's old name and painting in the new name in anticipation of the ceremony. The flying boat is a Savoia Marchetti S 66 which runs between Rome and Tripoli. (Flight Photo.)

To the Isle of Man

While Air Ministry experts have stated that Ronaldsway aerodrome, Castletown, is unsuitable, having a maximum length of only 560 yards, Capt. G. Olley, the Managing Director of Blackpool and West Coast Air Services, Ltd., has taken a lease, and is developing the aerodrome for general

Incidentally, during the period between May 1 and September 30, B. and W.C.A.S. have carried 3,762 passengers—an increase of more than 100 per cent. on last year's traffic figure.

The percentage of regularity has been 99.6.

As already stated in Flight, the service is being continued throughout the winter with one service daily in each direction, and bookings so far, despite a great deal of bad weather, have been well maintained. On one week-end recently the midnight boat took fourteen hours to reach Douglas, while the air service operated to schedule.

Interest in the North

"Progress in Air Transport since 1930" was the subject of a recent address by Mr. J. F. Leeming to the Liverpool and Manchester Section of the Institute of Transport at the Mid-

land Hotel, Manchester.

As a pioneer of commercial flying in the Manchester area, Mr. Leeming began his talk with a regret that his review must necessarily be somewhat negative, since the progress that had been made was not in keeping with technical development. On the other hand, he considered that speed (involving high landing speeds) was too much of a fetish with Continental designers, and the more conservative aims of Britain were probably in a direction that was better for sound development of commercial transport-notably the high factor of safety.

Regarding the use of more than one engine on comparatively small machines, he was something of a heretic. He was all in favour of the big single engine which was not so highly stressed as several smaller units which, although capable of maintaining height singly, in theory, were often only able to

ensure a prolonged glide.

After a very appreciative vote of thanks for Mr. Leeming's talk, there was a lively discussion ranging from technical questions to those involving practical problems of operation, and, fog being a common traffic difficulty in the North, there was considerable interest in the subject of flying and landing under adverse weather conditions.

New Air Mail Leaflet

In the latest edition of the Air Mail leaflet particulars are given of the air-mail services available in this country, of rates and times of postage to Europe and to countries outside Europe, and of parcel air mails. A ready reckoner is inserted showing the rates by Imperial services.

Hawaiian Air Mail

A contract for carrying an air mail between the Hawaiian Islands has been awarded to Inter-Island Airways, Ltd., of Honolulu. The rate of mail pay for this service, which is to link the four large islands of the group, Oahu, Maui, Hawaii and Kauai—a distance of approximately 330 miles—will be 19½ cents per machine mile.

A New Mexican Service

Aerovias Centrales, a subsidiary of the Pan-American Airways System, operating between El Paso, Texas, and Mexico City, has inaugurated a new schedule with a fleet of Lockheed "Electras." This new schedule provides an elapsed time of 7 hours 15 minutes between the two points, as compared with the previous time of 11 hours.

Season Tickets in 1924!

In Flight of October 18, it was suggested that Mrs. Wood, of South Wales, was the first person to hold an aerial season ticket. However, a reader writes to explain that, as long ago as 1924, Mr. W. R. Boyd, a manager of the General Electric Company, purchased a six months' season ticket from Northern Air Lines to enable him to fly from Liverpool and Belfast.

The North Sea Air Service

It is learnt that the K.L.M. Amsterdam-Hull-Liverpool service, when it is reopened next April, will run on a revised time-table. The machine will leave Liverpool for Hull and Amsterdam at 9 a.m., and will start the return journey from Amsterdam at 4 p.m. Besides allowing connections with the Continental services from Amsterdam, the new times will enable Liverpool business men to spend a full day in Hull and a number of hours in Holland.

Mrs. Mollison and Hillman's

While the Mollisons were at Allahabad Mr. Edward Hillman cabled Mrs. Mollison, offering her a place on the board of Hillman's Airways.

Mr. Hillman has considerable faith in Mrs. Mollison's "level-headedness," and feels that her general knowledge of all aspects of aviation, particularly since her long stay in the United States, will be extremely useful.

Several interesting developments, incidentally, are likely to emanate from Essex Airport in the near future.

The "Graf Zeppelin"

This year has again shown the possibilities of the airship for long-distance passenger and mail transport. During its seasonal operations to South America the *Graf Zeppelin* has carried 65 per cent. more passengers than were carried last year, and the excellent progress has induced the Luftschiffbau Zeppelin to plan one more trip. The *Graf Zeppelin* will leave Friedrichschafen on December 8, arriving at and departing from Rie de Lengisch exceptions and departing from Rie de Lengisch exceptions. from Rio de Janeiro on December 13, and returning to Germany on December 18.

It appears probable that the new L.Z.129, which is designed to carry fifty passengers, will come into service during

next summer.

Another Line to the Cape?

Mystery surrounds the possible future operations of a West African air service from London to Lobito, which was to have started operations last month, and which, with the permission of the Union Government, was eventually to be extended to the Cape. Four-engined ten-seaters were to be used, and the whole journey was to be covered in four days.

Up to the present, it is only known that Mr. Victor Smith, who has put his Comper "Swift" down in most of the impossible places on the route-and in various states of disrepair-has accepted the post of chief pilot, and that he left England for Cape Town in September.

Any further information will be gratefully received.

IMPERIAL AIRWAYS

At the 10th Ordinary General Meeting of Imperial Airways, Ltd., last Monday, Sir Eric Geddes, the Chairman, made a long and important speech, some of the more striking passages of which are summarised below

SIR ERIC said that the time was approaching when their major fleet would have to be replaced by faster aircraft, but their main line fleet was less than three years old, and it was impossible to contemplate renewing the fleet every two or three years.

The section of route Singapore-Australia would commence operations in December.

Doubling the Services

The line from England to South Africa, at least as far as Johannesburg, was to be doubled in frequency almost immediately to give two services each way a week. The Board also had under immediate consideration the question of increasing the Eastern service to twice weekly.

of increasing the Eastern service to twice weekly. They had under construction three new four-engined aircraft and four new twin-engined aircraft. The top speed of these would be in the region of 170 m.p.h. The four-engined aircraft were for use on the European services and certain extensions which the Board had in view. They would seat from eight to ten passengers. The twin-engined aircraft were for long-distance tours and charter work.

New Aircraft

They had decided to order two flying boats and two land-planes as prototypes on which experimental work could be conducted. These would be much larger and faster than anything now in the company's service. They would have a carrying capacity of from $3\frac{1}{2}$ to 5 tons according to the amount of fuel carried. One of the new flying boats would be required for the New York-Bermuda service, and would have a greater radius of action than the other boat, though otherwise the two boats would be approximately the same. The tenders for these aircraft were now under consideration. All of them would provide a higher standard of comfort than was provided at present.

Internal Air Lines

After outlining the company's policy as regards feeder lines in Africa and elsewhere, Sir Eric went on to discuss internal British lines and Railway Air Services, Ltd. He said that the day was approaching when some internal services could be operated profitably, though possibly only seasonally, without subsidy. Fierce competition between rival transport companies might be of temporary benefit to the public in certain conditions, but where no question of rival nationalities arose all forms of transport had been driven or led to amalgamation into large units.

Separate Mail Services

Turning to the question of separate mail services, Sir Eric said that to separate them from passenger services would mean that, instead of both classes of traffic getting the benefit of increased frequency, neither of them would, "and we believe that the passenger services are as important as mail services." From the industrialist's point of view, the personal contact was more important than any correspondence, and no amount of written matter could equal the visit of a director, a salesman, or an inspector. He held the view that "trade follows the passenger" far more than that "trade follows the mail." It might be that on some routes, when a higher frequency had been established, it would be necessary to operate some services to a faster schedule, or even perhaps at a higher air-speed, than others, but the Board regarded it as of the utmost importance to keep the fares and rates as low as possible,

hoping that in due course they could look to freedom from subsidy—a goal only obtainable if all countries tried to attain the same goal and refrained from a mad race in subsidised travel by air.

Speed-

When the present fleet had been replaced, the public might expect a substantial increase in speed as well as frequency. It would be idle, however, to hope that speeds achieved in the recent Australia race could be reproduced in a normal commercial service. Services which picked up and set down mails and passengers all along the line could not avoid a certain loss of time. In fact, the success of a service, measured in terms of the traffic which it attracted, tended automatically to restrict its speed.

After paying a compliment to Messrs. Scott and Campbell Black, Sir Eric said that it would be out of the question to contemplate flying through the night on the regular services with the existing aids to navigation on the Australia route. He then commented on the low cost of high-grade petrol in America as compared with the prices Imperial Airways had to pay, and said "the price we have to pay for fuel has been, and is still, the most powerful deterrent to high speed with which we have to contend."

-and how to get it

"Until our fleet is replaced, the desire for higher speeds can be met in two ways—first, by increasing the hours flown per day as soon as ground equipment permits, and, secondly, by an increase in the frequency which, in effect, is even better than an increase in speed alone.

"Increases in speed obtained in this way do not necessitate an increase either in subsidies or postal rates or passenger fares. We know that increased overall speed will be appreciated by our clients when it can be obtained without extra cost. I need hardly say, however, that we are anxious to take advantage of all the increase in air speed that is offered by scientific development, but within the limits of the economic pressure represented by the amount paid by the Government for mail carriage and subsidies.

"There is only a limited field by which we can provide additional speed. First of all, there is you, ladies and gentlemen. If you choose that this company shall be run at a loss we can give higher speed. Then there is the user. If he will pay more money, we shall be able to run at a higher speed. Thirdly, there is the Government. If they want higher speeds, someone has got to pay for them, and they are the only persons left. When we talk about higher speeds let us be quite clear in our minds that someone has got to pay the bill.

"I emphasise this point because our business is to operate whatever services our clients are prepared to pay for. We believe that our function of operating air transport services to the Empire can best be fulfilled by giving facilities to the widest public possible at the lowest economic fares; by carrying the ordinary passengers and the letters of the ordinary business man who is unable to pay the charges which are inherent to abnormally high speeds. But we can operate any kind of service, and it is for the Governments concerned and our customers to say and demonstrate which class of service and which scale of charges they wish to have."

The development of night flying was an urgent line of future development, and it required a large expenditure.

There was no technical difficulty in providing aircraft with adequate sleeping accommodation which would make flying twenty hours a day no more fatiguing than ten hours a day in present-day aircraft.

Atlantic Services and an Atlantic Aircraft

Arrangements had been made with His Majesty's Government in this country and Bermuda for the company to operate a mail and passenger service between Bermuda and New York. It would be operated equally and jointly with Pan-American Airways.

They had their own plans for an Atlantic service, which

appeared to them to be as promising as any of the others, if not more so. They were about to order, under agreement with the Ministry, an aircraft which should provide a range and paying load to meet the requirements of the route more satisfactorily than anything yet projected for the purpose.

They had for many months had plans under consideration which they believed would enable them to give a seven-day or 7½-day service to Australia. With the plans that they had made and the arrangements which had been commenced they could make, say, Sydney, in about 7½ days

days.

SIR PHILIP SASSOON'S AIR TOUR

Advantages of the Long-range Flying Boat : Comfort of Modern Air Travel : Fine Aerodrome at Singapore : Air Ministry Alive to Future Needs

N his return from his tour of inspection of R.A.F. units overseas, Sir Philip Sassoon, Under-Secretary of State for Air, made a statement to the Press on October 31st, in the course of which he said:—

"As is already well known part of my tour was undertaken by R.A.F. aircraft and part by Imperial Airways, and I have come back more than ever impressed by two things-the enthusiastic efficiency and outstanding fitness and morale of the R.A.F., and the comfort and advantages of civil air travel, which I foresee, must, in the not far distant future, tend more and more to supplant the older forms of transport. The whole tour was accomplished without a hitch. The performance of the new type 'Singapore III' flying boat, in which I undertook the first part of the journey to Aboukir, was an outstanding success. By the use of this machine it was for the first time found possible to proceed over all the main stages of the flight without stopping at intervening points for refuelling, as has been necessary in the past with other types. journey from Athens to Aboukir took 4 hours 20 minutes only.

Good Organisation

"My trip covered in all more than 19,000 miles over fourteen countries, and I was actually 180 hours in the air in seven different types of aircraft—civil and R.A.F. I also had experience of night landing on both sea and land, besides taking off in the dark. There were no forced landings at any stage of the journey, which says much for the safety of modern air travel; and, throughout, all flights were made strictly to schedule. In three days I travelled without hurry from the humid atmosphere of Singapore to the frosty nights of the Indian N.W. Frontier.

"I was particularly interested in the development now taking place in the aerodromes and landing grounds on the India-Singapore section of the route, and although there is still great room for improvement, I am satisfied that development is proceeding on the right lines. The chief difficulty over this part of the route is the dampness of the aerodromes during the monsoon period, but this matter is receiving the attention of the aerodrome experts. Fortunately, the prevailing winds do not vary substantially in direction, and it is therefore possible to overcome the difficulty by putting down landing strips on the aerodromes. This method has already been adopted at Bangkok with marked success. The civil aerodrome at Singapore is a very fine one, and the buildings have been extremely well designed and laid out. The people of Malay are enthusiastic over flying and realise their responsibilities and the fact that the peninsula must be a link of ever-increasing importance in the Empire air mail route.

"It was perhaps not inopportune that I should have been flying over the Singapore route at a time when the

great air race was taking place, and it was with considerable pride that I learned that the speed race was won by a British machine and British engine. This is most gratifying at a time when there is a tendency to decry British aircraft whilst praising, with enthusiasm, the products of foreign competitors. I agree, of course, that praise must be given where it is due, and no one recognises more than I the excellent performance of the Douglas machine, flown by those very able Dutch pilots. But I do not think that even the Dutch pilots themselves would claim that the time has yet arrived when it is possible to contemplate a speed of 200 miles an hour on a regular schedule flown in all weathers and at all times of the year. I have, in fact, seen a reference in the Press to a statement that K.L.M. do not anticipate that it would be possible to work to less than a seven day schedule to Melbourne.

"The lessons of the race were, of course, apparent to me, and to all those at the Air Ministry whose duty it is to watch progress in every sphere of aviation; but I do not wish it to be thought that any special action on the part of the Air Ministry is attendant on the result of such an event. The Department is always on the look out for and ready to make use of the advances in technique, possibly of far-reaching importance, which may result from such a race. But to think that the Ministry awaits the outcome of a sporting event would be very wide of the mark. Continuous effort is always being made in the direction of ordered progress in civil aviation, and you may rest assured that the Air Ministry does not wait for its attention to be focused on the necessity for speeding up air mails by an event of this character.

Speeding-up Empire Air Mails

"It must be realised that development in the air, as in all other matters, cannot proceed by sudden leaps, which experience in all spheres of activity has shown to be uneconomical and liable to defeat the attainment of the desired objective. The Air Ministry, in conjunction with the Post Office and Imperial Airways, has been working for many months past on plans for the further development of British commercial air transport. We reached the conclusion that the present flying-times between London and the other Empire capitals must be progressively and drastically curtailed, and that measures must be taken for the further development of air mail traffic in particular. Obviously a great deal of preparatory work has to be done, and the closest and fullest consultation with the Dominions and the Colonies is a necessary preliminary to the final formulation of a definite scheme. We are not yet in a position to make our plans public, and we have no intention of doing so prematurely, but I should hope that it would be possible to make some announcement on the subject within the next month or two."

CORRESPONDENCE

The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns

LESSONS OF THE AUSTRALIA RACE

From the Rt. Hon. Viscount Elibank, D.L.

The Australian Air Race has concentrated public attention upon issues which individual industrialists and Chambers of Commerce have been concerned with for many months.

A veritable flood of suggestions and criticisms of our civil air policy has been unloosed by the achievements of Scott and Black and the Dutch air liner. Some are good. Some are impracticable, but they prove the existence of a profound and widespread belief that we have within our reach the opportunity of establishing an unrivalled prestige over Imperial air routes if only we have the vision and courage to institute the necessary reforms.

But there is a grave danger lest in the spate So far so good. of criticisms the fundamental needs of civil aviation are lost sight of by the public. Faster machines, more adequate ground-work, a revision of air mail contracts, all these are important. But equally important from every point of viewand notably from that of the taxpayers—is the clear recognition of one reform from which many other benefits must spring.

If the Postmaster-General would reduce air mail costs to a low flat rate many other problems would automatically solve themselves. The carriage of Empire letters by air would provide the assured freight and the additional profitable incentive which aviation requires.

I would urge commentators and industrialists alike to concentrate their demands upon this one point. It is practicable, and it has been endorsed in principle by technical and business experts of unrivalled authority.

Too many pleas spoil the best of causes. It would be tragic if in clamouring for a multitude of reforms the public missed this one, which, because it matters so much, is fundamental.

House of Lords. ELIBANK.

My opinion on the lessons to be learnt from the England-Melbourne race is that special machines should be utilised for the carriage of mail. It is obviously a very natural assumption that passengers would not be prepared to travel at the express rate and under the confined conditions that the really fast type of aeroplane which has been produced in the "Comet" would involve, whereas mail could be carried quite conveniently in such machines, with relays of pilots. On my recent visit to London I was given to understand that the "Comet" had been redesigned for commercial use, but its cruising speed is reduced by thirty miles per hour. This is a very big reduction, and in my opinion would lose the advantage gained through the super-design incorporated in the racing "Comet." On the other hand, the Douglas machine demonstrated that it could fly almost equally as fast as the "Comet" with its passengers, and in comparative comfort. Even under these conditions it is questionable whether passengers are prepared to fly night and day with relays of pilots to maintain the maximum speed between stops of which the machine is capable. It would therefore appear that what we want in this country is a go-ahead Post Office which is prepared to foot the bill to give their customers the fastest possible service for which they pay so handsomely. After all is said and done, £10,000,000 a year paid into the Exchequer is not a bad profit to take from the public for present-day inferior mail services.

It is true that this subscription of the Post Office to the Exchequer helps in a small measure to ease income tax, but I wonder if the gain in this direction is commensurate with the good that would develop should even half of this sum be detailed for really fast mail transport to the Empire.

E. E. Fresson, Managing Director, Inverness. Highland Airways, Ltd.

AN ANNUAL "MACROBERTSON"

[2973] The great MacRobertson race has ended in a magnificent victory for Great Britain, the D.H. "Comet" and her pilots. It has justified, and even exceeded, the epithet great."

The race is bound to have far-reaching effects the world over by showing the public what those hitherto dangerous and destructive aircraft can do.

But, most of all, it has helped to improve the breed of mailcarrying aircraft, in the potential use of the "Comet" in that

May I suggest that one of our rich sportsmen might employ (some of) his surplus capital in making the race an annual or biannual event? This would help to keep the breed healthy,

and would also serve another necessary purpose.

As an aftermath to the success of the "Comets" in the race, the Government has, we hope, been made to see the immediate necessity of speeding-up our air-mail services. But, how long will it be before the Government finds it convenient to forget An annual or biannual "MacRobertson that necessity? would force those in authority to keep up to scratch in this all-important matter. London, N.W.11. A. L. F.

SPEED

So much has been written in the newspapers recently about the question of speed on the long-distance air routes that a large number of people have gained the firm impression that the Imperial Mail services take at least twice as long as foreign national services to reach a common destination. belief is so widespread that I find even some of my own staff are becoming imbued with the same ideas, and it is therefore advisable to draw general attention to comparative timings of the three air services to the East. The days are taken from the current "Bradshaw's Air Guide."

I.A. (British) K.L.M. (Dutch) A.F. (French)

London		ist	day	ist	day	Ist	day
Cairo		3rd	11	4th	,,		-
Karachi	* *	6th	**	6th	11	7th	190
Calcutta	* *	7th	**	7th	37	8th	
Bangkok		8th	2.0	8th	10808	roth	
Singapore		9th		toth		_	-

You will therefore see that a letter posted by Imperial Airways service to the present terminus, Singapore, reaches its destination in a shorter time than by any other, and I should be grateful if this information could be disseminated as widely as possible,

It should be borne in mind that the magnificent performances in the recent speed contest to Australia were under racing conditions, and cannot be regularly achieved by any air transport

concern on this route under service conditions.

IMPERIAL AIRWAYS, LTD., DENNIS H. HANDOVER, Traffic Manager. Airway Terminus, Victoria Station, London.

THE COST OF SPEED

In view of the Melbourne Cup Race people are already complaining about the speed of British air traffic as compared with that of America and other countries. speed is the essence of successful air traffic, Flight is certainly doing a great service in emphasising the fact that speed

Although British producers can, and will, build as fast and sound machines as any other nation, it is only strong public support and interest that can justify immense sums of money being expended on experiment and development of speedy

passenger-carrying machines.

British aviation enthusiasm has been strongly aroused over this race, and the Dutch Liner has done as much, or more, in that direction than the Comet, but still we have people who obstruct and hinder British aviation to the utmost of their power, some from self-interest, and others because they are really blind to the simple fact that already only those nations sufficiently powerful in the air count for anything in the commercial and other activities of the world. As a country the British may well be delighted with the performances of their individual private citizens in connection with aviation, but if they are satisfied with the general attitude of most governing bodies in this respect they must be singularly blind to their own interests. THEU-EE.

Ryde, I.O.W.

THE INDUSTRY

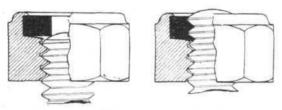
THE SIMMONDS ELASTIC STOP NUT

How to produce an efficient and reliable method of locking nuts so that they will not back off under vibration has been a problem which many inventors have tried to solve, and a variety of devices have been evolved with varying degrees of success. Perhaps one of the most successful of these is the Simmonds Elastic Stop Nut, produced by Simmonds Accessories, Ltd., of 55, Turnmill Street, London, E.C.1, which has now passed through over five years of development in the U.S.A., where it is universally used in all branches of engineering, and particularly aircraft engineering. For instance, the Douglas air liner uses some 30,000 of these nuts, the Boeing Transport 25,000, while the new Sikorsky flying boat unsuccessfully tries to shed 55,000 of them! This nut has also been approved by the Air Ministry, and is being used on Service aircraft

In design the Simmonds Elastic Stop Nut is a standard nut slightly increased in height to incorporate in the head a fibre This collar has an internal diameter slightly less than that of the bolt, and initially is unthreaded. Except for this collar the nut has every property of a standard nut, the play between the threads being to standard tolerances. Of course, it is this clearance-whilst making for easy assembly-that is the main cause of an ordinary nut backing off under vibration.

How It Functions

In the case of the Simmonds nut, however, when the bolt has passed through the threaded portion of the nut and reaches the fibre collar, the latter, due to its smaller hole, momentarily resists further advance of the bolt. The bolt then tries to push out the collar, and in so doing forces the



Showing how the fibre collar in the Simmonds nut grips the bolt and exerts pressure on the under side of the bolt thread when screwed home.

nut away from the head of the bolt until the sides of the thread are in contact. The harder the fibre material the greater the force necessary to make the bolt cut its way through the collar, and the harder the nut is pressed upwards. This force distributes itself as a pressure on the under side of the bolt thread—the side of the thread which, when the nut is drawn home, will carry the normal load. Naturally, the heavy friction caused by this pressure

between the sides of the thread in contact results in a very considerable anti-rotational force being exerted should the nut tend to turn. After the upward pressure has reached the maximum the bolt cuts through the fibre collar, and the fibre wedges into the bolt threads and closes round the bolt with an airtight grip. This grip, it should be added, further increases the anti-rotational characteristics of the nut. The elasticity of the fibre enables a nut to be used over and over again without the slightest detriment.

Simmonds nuts are made in three main types-Hexagon, Anchor, and Clinch-and in the following materials: Mild steel, stainless steel, light alloy, brass, and tungum.

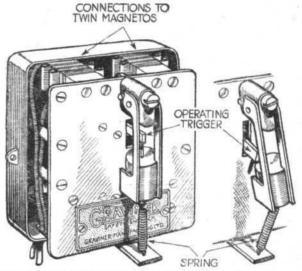
THE GRAVINER SAFETY SWITCH

IN our issue of July 19 last we made brief reference to a 'Robot'' safety switch, the function of which was automatically to switch off the ignition in the event of a crash. We are now able to give some turther particulars, together with a sketch, of this device, which is known as the Graviner Safety Switch, and is produced by the Graviner Manufacturing Co., Ltd., of First Avenue House, High Holborn, W.C.I. Graviner Safety Switch as modified to meet the Air Ministry's requirements for use on civil aircraft has just been completed, and incorporates the following points:

I. Every instrument made is tested to ensure that it does not operate at an acceleration of less than 4.25g., and that it does operate at an acceleration of more than 4.75g. No instrument

is sent out which fails to pass this test.

2. The operating mechanism is not subject to friction as it is not moved by movement of the inertia element, which is con-



THE GRAVINER SAFETY SWITCH: Sketch showing how the spring-loaded pendulum, when brought into operation by violent impact, etc., releases the operating trigger which switches off the magnetos.

trolled by a spring, and the operation of the instrument is un-

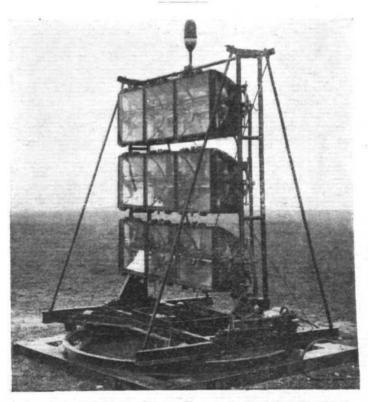
affected by a spring, and the operation of the instrument is unaffected by temperature changes, and no part of the mechanism is liable to wear or fatigue or any form of deterioration.

3. The switch is all metal (except for thin mica insulation)—principally Duralumin—and its weight is about ilb.

4. The switch contacts are provided in triplicate, two independent sets being provided so that two magnetos can be controlled by one switch. Other contacts are provided for battery trolled by one switch. leads and the generator. Other contacts are provided for battery

5. The switch is designed to withstand impacts such as would be caused by a crash in which an aircraft travelling at 200 miles per hour comes to rest buried 3 feet in the ground. It will be remembered that this device is operated by a

pendulum which works according to gravity in the case of overturning, and inertia in the case of impact. Bumps and slight impacts do not cause the pendulum to swing sufficiently to make a break in the circuit, but a violent collision causes the release of the switch contacts.



FOR NIGHT FLYING: The 9 k.w. Aerodrome Floodlight, manufactured by the General Electric Co., Ltd., similar to that installed at Croydon Airport. It has nine 1,000 watt Osram lamps in three tiers.

AIR POST STAMPS

By DOUGLAS B, ARMSTRONG

(Editor of "Stamp Collecting," etc.)

Melbourne Air Race Covers

OLLECTORS will not lack for souvenirs of the spectacular London-Melbourne air race. Although no mail was officially accepted by the British post-office for transmission by this flight almost all of the competitors seem to have carried a supply of letters to be posted on reaching their journey's end, and a complete collection autographed by the various pilots should be valuable and historically interesting.

In greatest demand will be, of course, those conveyed by Messrs. Scott and Black in the winning machine, but a certain sentimental interest attaches to the small mail entrusted to the unlucky Mollison pair, which travelled only as

far as Allahabad The Dutch flyers, who were the second to arrive at Melbourne, carried by far the largest mail, officially despatched by the Dutch Air Lines and franked with special stamps, of which, it is understood, there were about 5,000 letters in all.

England-Australia (Weekly) Air Mail

Souvenir envelopes of distinctive design are again being provided by Imperial Airways, Ltd., for letters despatched by the first flights in either direction of the official England-Australia air mail service to be inaugurated on December 8th. The cost of the envelopes is id. each, or 8s. per 100, plus a handling fee of 2d. per cover. Letters can be addressed to or from any of the six stages en route, and enquiries should be addressed to the "Air Mail Department Imperial Airways, Ltd., Airway Terminus, London, S.W.I."

First England-Australia Air Stamp

All this activity in connection with the air mail service between England and Australia should reawaken the collector's interest in the special souvenir stamp prepared by the Commonwealth authorities to commemorate the arrival in Melbourne of the very first aerial post from England carried by the late Sir Ross Smith on his epoch-making flight in November, 1919-February, 1920. Possibly because the British stamp catalogues refuse to recognise it as a legitimate air mail stamp, notwithstanding that it is listed as an official issue on the Continent, the Ross Smith stamp has been under a cloud for some time past. One flown cover realises in auction to-day round about 20, which is less than half what it fetched a few years back, whilst the unused vignette can be picked up for £50 or so, whereas it originally sold for £90. Since no more than 300 missives were forwarded to their addressees under frank of this label, and the number of unused examples is still smaller, it will be seen that these current prices compare very unfavourably with those commanded by other air mail rarities that exist in similar quantities.

Air Stamps Artistic

Some of the most artistically beautiful air mail stamps that have yet been seen made their appearance last month in the Italian Colonies of Cirenaica and Tripolitania (N. Africa) by way of postal propaganda for an Exhibition of Colonial Art now in progress at Naples. The work of Prof. Rodini, and effectively reproduced in photogravure by the State Bank Note Printing Office at Rome in large, almost square format, they depict in the case of Circnaica an aeroplane passing the famous headless statue of Venus de Cyrene. and the arrival of the desert air mail watched by two blackamoors respectively. Tripolitania presents an original picture of the shadow of an aeroplane on some sand-dunes, and a group of camel corps observing an aeroplane overhead. The Red Sea Colony of Eritrea and Italian Somaliland have likewise been supplied with pictorial air mail stamps in the same connection. The face values of each of the four sets are the same, viz., 25, 50, 70 and 80 centesimi, 1 and 2 lire.

Russia's Latest

From Soviet Russia comes a new and striking set of five air mail stamps in designs by the native artist, Zavialov, illustrating types of the recently constructed airships of the Union, of which 60,000 series were placed on sale on October 20th last, printed in photogravure at Moscow, as follows:



ANCIENT AND MODERN. On the left is the souvenir stamp issued to commemorate the first mail carried between England and Australia by the brothers Ross and Keith Smith in 1919. On the right, two striking designs from the new series of stamps just issued for the Italian Colonies of Tripolitania and Circnaica.

5 kopecs red-orange (Airship "Pravda"), 10 kop. lilac (Airship landing), 15 kop. brown (Airship "Lenin"), 20 kop. black (airship motors running), and 30 kop. blue (Airship "Vorochilov").

Mexican Motifs

Yet another picturesque addition to the air stamp collection hails from Mexico as part of a long series of stamps commemorating the anniversary of the foundation of the National University. In each instance they depict aeroplanes in flight over characteristic Mexican scenes and monuments, notably the mountain of Nevada de Toluca (20 centavos orange), the Pyramid of the Sun, Teotihuacan (3oc. lilac and violet), Valley of Ajusco (50c. olive and brown), Mount Popocatapetl (75c. black and green), Bridge of Pepacayo (1 peso olive and turquoise), the venue of Chapultepec (5 p. brown and blue violet), Mount Orizaba (10 p. blue and lake), and the City of Mexico (20 p. brown and carmine).

NEW COMPANIES

BOULTON PAUL AIRCRAFT LIMITED. Registered as a "public" company on October 25, with a nominal capital of £300,000 in 5/- shares. The objects are to acquire the goodwill and assets of the aircraft business carried on by Boulton & Paul, Ltd., to adopt an agreement with the Electric & General Industrial Trust, Ltd., and to carry on the business of aircraft and aerodrome equipment of all kinds and the component parts thereof, and all kinds of machinery and apparatus for use in connection therewith, maintainers and workers of aerial transport of all kinds, providers and maintainers of hangars, garages, sheds, aero-dromes and accommodation for or in relation to aerial transport, maintainers of schools of instruction in connection with flying and the use of aircraft, manufacturers of and dealers in motor cars and carriages, launches, boats and vans, restaurateurs and hotel and eating house keepers, timber merchants, etc. The first directors (to number not less than two nor more than eight) are: The Rt. Hon. Lord Gorell, C.B.E., M.C., 31, Kensington Square, W.8. The Rt. Hon. Viscount Sandon, D.L., J.P., Sandon Hall, Stafford. Stanley W. Hiscocks, "Oaklands," Belvedere Road, Coventry, joint managing-director of the company. John D. North, Hill House, Eaton Hill, Norwich (director of Boulton & Paul, Ltd.). Solicitors: Pinsent & Co., 6, Bennetts Hill, Birmingham.

THE LONDON AIR SYNDICATE, LIMITED. Nominal capital, £30,000 in

THE LONDON AIR SYNDICATE, LIMITED. Nominal capital, £30,000 in 25,000 6 per cent. non-cumulative preferred ordinary shares of £1 and 100,000 deferred ordinary shares of 1/- cach. Objects: to carry on the business of proprietors and/or managers of aerodromes: to promote and encourage aviation in all its forms, to establish, maintain and conduct a flying club (residential or otherwise), etc. The subscribers (each with one preferred ordinary share) are: Albert T. C. Baker, 19, Alwyn Avenne, Chiswick, W.4, common law, managing clerk. Solicitors: Boyce Evans & Sheppard, 14, Stratford Place, W.1.

5 5 0 0 PUBLICATIONS RECEIVED

Aeronautical Research Committee Reports and Memoranda. No. 1454. Interferometer for Recording Turbulent Flow. By L. F. G. Simmons and C. Salter February, 1933. Price 9d. net.

Aeronautical Research Committee Reports and Memoranda. No. 1597. Pressure Exploration over an Aerofoil that Completely Spans a Wind Tunnel. By W. L. Cowley and G. A. McMillan. October 1933. Price 9d. net. London: H.M. Stationery Office, W.C.2.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors, (The numbers in parentheses are those under which the Specification wil' be printed and abridged, etc.)

APPLIED FOR IN 1933

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LUNDHOLM AKTIEBOLAG, C. H. Harness for parachutes. (417,649).
BENDIX AVIATION CORPORATION, Navigational steering systems. (417,658).
BLACKBURN AEROPLANE AND MOTOR Co., LTD., and *PETTY, G. E. Slinging-gear for aircraft. (417,813).
PRECISION MODERNE. Anti-aircraft fire-control apparatus. (417,697).
FAIREY, C. R. Controlling mechanism of aeroplanes. (417,893). 10198 22970.

26733.